

BULLETIN

OF

Agricultural Problems Questions and Arithmetic

Ohio Farmers' Institute

THE AGRICULTURAL
COMMISSION OF OHIO

FARMER INSTITUTES

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1914



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FOREWORD.

“It is thinking that marks the difference between western and oriental civilization.”

“As a man thinketh in his heart, so is he.”

In compliance to a request for subjects for round table work at institutes, clubs, granges, etc., this bulletin has been compiled from almost every imaginable source of agricultural activity.

It will enable the beginner to see and know some of the problems that will likely be up for solution later on.

In answering the many questions a fund of information will have been acquired.

In Farm Arithmetic will be found ample room to test a review of bygone days of grown-ups and practical study for boys and girls. Care has been exercised to obtain the subject matter from reliable and up-to-date sources and we believe much good will come from a free, impartial and charitable discussion of any and all problems and questions.

C. R. WAGNER,
Deputy Director.

FARMERS' INSTITUTES.

A. P. SANDLES, *Director.*

C. R. WAGNER, DEPUTY DIRECTOR, ARLINGTON, OHIO.

Some Important Problems.

- How to secure efficient local officers.
- How to secure efficient state speakers.
- To what extent should entertainment be provided?
- How to secure necessary and proper room for holding.
- How to get the attendance of those who most need help.

Some Pertinent Questions.

- 1. What is the most efficient method of advertising the institute?
- 2. In what manner should local officers be selected?
- 3. Should local or state authorities select dates, speakers, etc?
- 4. What good, if any, has come to this locality through the holding of institutes in the past?
- 5. What time should state speakers occupy at each session?
- 6. Which is preferable, two gentlemen state speakers or one?
- 7. Should a lady speaker be provided by state?
- 8. If so, should it be for one or two days?
- 9. Should there be a separate ladies' session?
- 10. Should a practical demonstration be made at some session along culinary lines?
- 11. What part of a session should be given to local speakers?
- 12. How much time to a local discussion of subjects?
- 13. How much time should be given to readings? Music?
- 14. Should a night session be held? If so, of what should it consist?
- 15. Could a stock judging contest be arranged for?
- 16. Could a sewing contest be made of interest and value?
- 17. At what hour should sessions convene and dismiss?
- 18. Should special sessions be provided for?
- 19. Should questions be asked during or after a lecture?
- 20. What is the most acceptable time for holding institute at this point?
- 21. Should other than practical farmers be placed upon state regular institute lecture force?
- 22. Should the institute be continued at this point? Why?
- 23. Should the institute alternate between near-by points?
- 24. Of what value are resolution committees? Why?
- 25. Am I doing my full share to make this meeting a success? If not, why not?

THE HORSE.

E. C. MARTINDALE, WILKINSON, IND.

Important Problems.

Selecting the dam.

Selecting the sire.

Keeping the different classes distinct in breeding.

What and when to feed.

Educating or training the horse.

Pertinent Questions.

1. Name four characteristics of a good brood mare.
2. Name four characteristics of a good sire.
3. Into what two general classes are horses divided?
4. Describe a good draft horse.
5. Describe a good road horse.
6. Is it advisable to cross the draft and road horse?
7. What sort of a horse would the progeny be? Where would he sell? What price would he bring?
8. What will a good draft colt bring at six months old? At one year? At two years? At three years?
9. What will a good road colt bring at six months old? At one year? At two years? At three years?
10. What will be the difference in price of two colts, with same care and feed one sired by a pure bred sire and the other by a scrub, at six months old? At one year? At two years? At three years?
11. How much could you afford to pay for the services of a good pure bred sire, rather than get the service of a scrub free?
12. Is the motor vehicle having anything to do with the demand and price of the road horse?
13. Will the farm tractor have anything to do with the demand and price of the draft horse?
14. What would you feed a brood mare?
15. What would you feed a stallion?
16. Would you work the brood mare?
17. Should there be any *doubts* about working her?
18. Would you work the stallion? Why?
19. At what age would you begin feeding the colt?
20. What would you feed him?
21. Would you allow him to follow the mare?
22. At what age would you begin handling him?
23. Is there danger in over-working the young horse?
24. Would you hitch single or double first?
25. At what age would you sell him?

HORSE.

J. L. BUCHANAN, SHERODSVILLE, OHIO.

Important Problems.

1. To get down to some efficient and definite system of horse breeding.
2. Is for each section or district to produce but one breed of draft horses of proper type, and one breed or type of light horses.
3. To produce what the markets demand.
4. To successfully overcome joint and navel ill.
5. To be able to compete with the auto, auto-truck and tractor.
6. To get rid of inferior and scrub sires, also inferior dams.
7. To produce an abundance of just the right kind of feed and pasture.
8. How to find the right market after we have produced the horse.

Pertinent Questions.

1. Give origin of horse.
2. Describe pair of horses that came out of the ark.
3. What has brought about the difference between the different breeds of horses today?
4. Why the drafter, and how was he produced?
5. Why the Shetland pony, and how was he produced?
6. Why the Arabian, and how was he produced?
7. What is an English thorough-bred, and how produced?
8. What is a Morgan horse? To what great sire must he trace, and tell what you know about him?
9. Name seven breeds of draft horses, and how each breed brought about.
10. Define the following terms: pure bred, thoroughbred, registered, pedigreed, cross-bred, grade and scrub?
11. How would you go about to select a good broodmare? What would be your first requisite?
12. How would you select the proper sire to mate your mare?
13. How much should a draft stallion weigh at maturity?
14. How much should a draft mare weigh at maturity?
15. How much should a typical Morgan weigh at maturity?
16. How much should a standard bred weigh at maturity?
17. How soon after foaling should a mare be bred?
18. How many days after breeding should she be returned?
19. Define artificial breeding (For men's session)
Define impregnator and capsula system (For men's session).
20. Is periodical ophthalmia (moon blindness) contagious, hereditary or from a local cause?
21. Can a colt inherit unsoundness?

22. Name winter ration for pregnant mares.
23. Name winter ration for colts first winter.
24. Name winter ration for colts second winter.
25. How should a colt be cared for until weaned.
26. When should a colt be weaned?
27. When should a colt be broke?
28. How do colts get joint and navel ill? What is the remedy?
29. Will autos drive the horse out of use?
30. What effect will the European war have on the immediate and future markets of the horse?
31. How much should a draft colt weigh at 12 months?
32. How much should a road colt weigh at 12 months?

HORSES.

PROF. B. E. CARMICHAEL, WOOSTER, OHIO.

Some Important Problems.

- To secure good mares and get access to worthy sires.
- To get mares with foal.
- To save the colt.
- To feed the horse adequate rations that are not too costly.
- To break properly.
- To fit the horse for the requirements of high class markets at sale time.
- To avoid losses from accident and disease.

Some Pertinent Questions.

1. What type of horse should be bred?
2. At what age should mares be bred?
3. At what age should the stallion be used for service? How heavily during the first, second, and third years of service?
4. Should the stallion be worked?
5. Should brood mare be worked while pregnant? While suckling foals?
6. At what age should colts be gelded?
7. Should mares receive grain when on pasture with suckling foals?
8. Should foals receive grain when on pasture with dams?
9. What constitutes a good and economical ration for a 1500 pound horse used solely for work purposes?
10. What changes should be made in the above ration to make it suitable for the brood mare that is worked? For the growing colt?
11. Should work horses be given access to pasture at night?

12. What is the relative feeding value, for work horses, of ear corn and oats when mixed timothy and clover hay is used?
13. Is it ever profitable to grind grain for work horses? To soak corn?
14. How often and when should horses be watered? Should water be offered after the evening meal during hot weather?
15. Is it sound economy to require valuable horses to consume large amounts of stover or other rough feed when at work? When idle?
16. Should the work horse be clipped in early spring?
17. Should the public watering trough be used?
18. What are some of the ways in which the *net* cost of work horse maintenance may be reduced?
19. What can be said in favor of and against growing fall colts?
20. Is a thin horse actually worth as much as a fat horse for city use? For farm use?
21. Is the present stallion law adequate and just?
22. What unsoundness should be especially avoided in breeding animals?
23. In what respects are horses most often mistreated in the stable? In harness?
24. What causes occasion the greatest losses among horses in Ohio?
25. What can community breeding do for Ohio's horse stock?

CATTLE.

FRANK M. RUPPRECHT, MARYSVILLE, OHIO.

Some Important Problems.

- Contagious abortion.
- Help question.
- Tuberculosis.
- Dairying without a silo.
- Buying a farm without capital, or renting for a term of years.

Some Pertinent Questions.

1. Which is the more practical as a substitute for pasture, soiling crops or ensilage?
2. At present price of land can we really afford to pasture much?
4. Why is it not advisable to use a grade bull under any circumstances?
5. In starting in the pure bred business, would it be better to purchase several heifer calves, or one good cow in calf?
6. Why should community breeding be encouraged?

CATTLE.

L. P. BAILEY, TACOMA, OHIO.

Some Pertinent Questions.

1. Name distinctive breeds of dairy cattle.
2. Special dairy cattle, or dual purpose cattle, which?
3. Can the Ohio farmer pay for a farm raising beef cattle?
4. Can the Ohio Farmer pay for a farm with dairy cattle?
5. Should the dairy calf be fed differently from the beef calf? If so, why?
6. Which are the largest interests now in Ohio—butter, cheese or market milk?
7. Should the dairy farmer expect maximum prices for his products before he demonstrates his ability to produce high class quality goods?
8. What are the main essentials in getting maximum prices?
9. Which offers greater opportunities for profit, registered dairy cattle or grades? Give reasons for the faith that is in you.
10. Should dairy farmer keep a record of milk production and fat contents of the milk from each cow? Give reasons.
11. Can every farmer correctly use the Babcock Test, or learn to use it?
12. Which is of greater importance for success in the dairy, good care or the breeding of the cattle? Why? Give instances that you know.
13. What feeds should the Ohio farmer raise? What buy?
14. What about silo? What about clover? What about alfalfa, beets and roots?
15. Can the dairy farmer depend on pasture for his cows every summer?
16. If not what shall he raise to supplement the pastures?
17. How will the silo take the place of green soiling crops?
18. Should we always feed a balanced ration, according to feeding standards?
19. Should we consider market values of feeds in making a ration for cows?
20. Is system and regularity in the dairy as needful as in a railroad company or a factory?
21. Which is most essential, palatability or a balanced ration? Which do you demand for yourself?

BEEF CATTLE.

By JOHN BEGG, COLUMBUS GROVE, OHIO.

Some Important Problems.

1. What four things are most necessary for a successful cattleman?
Answer:
 - a. A love for the animal and the business.
 - b. Good breeding stock.
 - c. Plenty of good feed, and a knowledge of how to apply it.
 - d. Good judgment as to quality in cattle.
2. Which is the better method of raising calves, all things considered, by the skim milk method or by letting them run with their dams?
3. Which is the more important good breeding or good feeding in raising calves?
4. How old should a calf be before it is put on skim milk, when raised by hand?
5. Is skim milk from the separator any better for a calf than milk obtained from the old process of skimming?
6. Does it pay to feed a young calf corn meal in its milk?
7. Is it advisable to feed bran or oil meal in milk to a calf?
8. How old should a calf be when weaned from milk, either when raised by hand or with cow?
9. Is there any benefit derived from grinding corn and oats for young calves? If so, what is it?
10. Should a young calf have water to drink when fed on skimmed milk?
11. What is the best ration for a growing calf?
12. Does it pay to rough young cattle through their first year?
13. Does a stunted calf ever obtain as full development as one that has never been stunted?
14. Which is the more profitable to sell a good male calf for veal at present prices or keep it until two years old and sell it for beef?
15. Is ensilage a good feed for calves under one year old?
16. Does it pay under present conditions to grow heifer calves to maturity?
17. Should young steers be fed a grain ration the first winter when grown for beef?
18. Will it pay to grow a steer calf of the milk breeds until he is past one year old? If not, why not?
19. Can the average farmer raise feeders cheaper than he can buy them?
20. Is Ensilage a good feed for fattening cattle?
21. Does it pay to keep steers until they are three years old?
22. Is stall feeding of steers more profitable than outdoor feeding?

23. What is a balanced ration for a feeding steer?
24. Is a cross bred steer as profitable a feeder as a pure bred?
25. Does it pay to feed corn to steers on grass in summer at present prices for both?
26. When is the best time of year to feed steers to get best results in gain profit? Are greatest gains most profitable?
29. Are the incidental profits of cattle feeding sufficient to justify the practice when no direct profits are obtained?
30. What is a good average gain per day for a fattening steer?
31. Will a milk cow yield more profit in a year than the same amount of capital invested in young steers, feed, labor and care considered.
32. Is the future of the cattle business promising?

DAIRY CATTLE.

R. E. FREDERICK, POLAND, OHIO.

Some Important Problems.

- Improvement of our herd.
- Sanitary conditions of the cow.
- Compounding efficient rations at low cost.
- Value of special bred cows.

Some Pertinent Questions.

1. What breed suits our need?
2. What kind of a sire shall we use?
3. Can we afford to keep a cow that does not produce 300 pounds of fat in a year?
4. Can I afford to not belong to a cow testing association?
5. What sized cow is most profitable?
6. Should a dairyman select cows of one breed?
7. What season of the year should we have our cows freshen?
8. Is pasteurized milk healthful?
9. Should there be some legislation as to the kind of a bull to be used on dairy cows?
10. Ought dairymen be punished for vealing well bred heifers?
11. Will it pay a dairyman to milk three times a day?
12. Does it pay to pasture cows?
13. What is the advantage of the summer silo?
14. What are the best crops for soiling?
15. Is the present system of tuberculin testing a success?
16. Can cows be fed entirely on home raised feeds?

DAIRYING.

PROF. OSCAR ERF, O. S. U., COLUMBUS, OHIO.

Some Pertinent Questions.

1. Describe best method of raising a calf.
2. At what age should a heifer be bred?
3. What is the best way to develop a heifer?
4. What is the best method of grading up a herd for higher milk and butter fat production?
5. Give the disadvantages in building up a grade herd for milk and butter fat production.
6. What is the best method of handling a cow previous to parturition?
7. Explain the best method of feeding cows.
8. What must a cow produce under ordinary conditions to become profitable?
9. Is it profitable to feed expensive rations? If so, under what conditions?
10. Name and estimate the cost of all the items that enter into the expense of keeping a cow for a year.
11. Name and estimate the cost of all the items with which the cow should be credited.
12. Give an accurate and systematic way of selecting a bull capable of transmitting his characteristics of high milk and butter fat production, to his offspring.
13. How should a bull be fed and cared for?
14. How can the value of a bull be estimated in dollars and cents?
15. Explain in detail the different methods of raising a calf until one year old, giving cost under the different methods.
16. What is the value of the manure from a cow for one year?
17. Do you consider silage an economical feed? If so, compare the saving per acre, compared with pasture and hay.
18. How would you harvest and store silage corn?
19. What do you consider the best method of stabling dairy cows?
20. Give in detail the construction of a sanitary dairy stable?
21. How should the ventilation system be constructed?
22. How many pounds of grain should be fed, under various conditions, to each gallon of milk?
23. From a butter fat standpoint, which is the better cow, one that produces 50 pounds of milk containing 3% butter fat or one that produces 25 pounds of milk containing 6% butter fat?
24. Name the dairy breeds and give the characteristics of each breed.
25. How many pounds of legal butter can be made from 16 pounds of butter fat?

26. Which is the best proposition, butter fat at 30c a pound, skim milk being worth 35c per hundred; 20% cream worth 80c per gallon; or whole milk containing 4% butter fat, worth 16c per gallon?
27. How many gallons of 20% cream can be made from 100 pounds of 4% milk?
28. What is skim milk worth per hundred pounds? Name the conditions.
29. What would you feed a cow for high production?
30. Is there such a thing as a dual purpose cow? If so, describe it.
31. How is the amount of butter fat in milk determined? Describe the method.
32. Give the federal definition and legal standard for milk.
33. Give the state standard for milk.
34. Give four causes for the variation of cream tests.
35. Explain the relation of dairying to the conservation of soil fertility.
36. How should milk fever be treated?
37. What causes milk to sour?

DAIRYING.

W.M. A. MARTIN, KENTON, OHIO.

Problems of Importance.

1. That they have cows bred along dairy lines.
2. That they feed them a ration, liberal in amount every day in the year, and so made that it gives the cow a chance to produce all she has breeding to do.
3. That this ration be mainly home grown.
4. That a systematic record be kept of every cow's work. That is, a daily record of milk produced with occasional butter fat test.
5. By using a bull from high producing ancestry, and raising the heifer from the highest producing cows, average production can be raised and cost of production lowered.
6. A realization that production is only half of profitable dairying—selling your product the other half. It takes both to win.

DAIRY.

BY HENRY S. KELLY, GENEVA, OHIO.

Some Important Problems.

1. Hired help, poor milkers and feeders.
2. The Elimination of testing individual cows under pressure

Some Pertinent Questions.

1. How does a cow give milk?
2. How does a man know anything about dual purpose cows for dairy, that knows nothing about the breeding or keeping of them?
3. How does a man know how another man may succeed by doing as he has done, their tastes and surroundings and health being different?
4. Why breed cows with horns when it is just as easy to breed them without.
5. Do the horns on a cow help her to give milk?
6. If you had a cow without horns would you try and make her wear false ones?
7. Does any one who has a comfortable stable have good reasons why cows should be kept in open shed?
8. Are there many dairymen that have become millionaires from the products of the dairy?
9. In buying protein feeds to balance rations for cows, then taking 15 or 20 percent from them the balance making manure, is it better practice than buying commercial fertilizer to grow protein feeds.
10. If keeping manure until fall and putting on wheat ground, insures a stand of clover the next year, without lime, is it better to put it on corn ground and not get a stand of clover?—We need the clover for cows. The rotation being corn, wheat, oats and hay.
11. Can cows be kept under farm conditions with an 8 hour day?
12. As dairying is now conducted can enough help be kept so that the owner can be gone a week at a time just as well as not?
13. To buy and equip a farm costs lots of money—can a young man without much capital go in debt for most of it?
14. If cows giving 4 percent milk and you sell it for \$1.75 per hundred pounds, can you do better making butter, and follow the Elgin prices?
15. If you have cows giving 4 percent milk and your neighbor's cows give 3 percent milk, and you sell at the same price and place, can you under the law take out cream and make yours 3 percent—If not, why not?
16. Why is so much made of tuberculosis in cattle, and nothing said about it in hogs?
17. If hogs have cholera and lung trouble, why not make the owners go out of business?
18. Don't you think personal inspection of herds, and pointing out those that should be destroyed would answer? Probably the County agent could see to it.
19. Will a cow that milks well from three teats give as much milk as she would from four?

20. Don't you think that milk ought to sell for the amount of fat in it, and be labeled just the same as feed and fertilizers we buy?
21. What is the best grain to feed cows in summer on pasture, not having ensilage?
22. If cows eat with avidity the ration, can you feed them more than is profitable?
23. Cows used to do the best in June, and look the best of any time of the year. If you make June conditions for cows as to temperature and feed, in winter, will you get as good and profitable results?

DAIRYING.

WALLACE E. DOBBS, MENTOR, OHIO.

Some Practical Problems.

- How to obtain higher price for a purer product.
- Transportation from outlying districts to market.
- The high price of concentrated dairy feeds.
- Inefficiency of labor, and scarcity of same.
- Sufficient education and rounded experience.
- Difficulty of obtaining cheap and efficient means of cooling in hot weather.
- Taking care of manure with greatest cleanliness and least waste of plant food.
- Large overhead expense.
- Growing alfalfa, or clover and ensilage in abundance.
- High cost of cutting ensilage and filling silos.
- Adjusting product to demands of market.

COST ACCOUNTING IN DAIRY.

DILLWYN STRATTON, WINONA, OHIO.

Some Pertinent Questions.

1. What should be figured in as cost accounting?
2. Do you include labor, capital and depreciation in your cost?

My experience in *cost accounting* the past twenty years amongst the cows makes me place this at the head of the list, not only for the cow men, but for other farmers. People who learn to cost account the cow will figure on the cost of wheat, corn and oats. From this as a base, they will appraise their soil fertility, drainage, lime and phosphorous values. Am first teaching to farmers that it should be what is worth while, labor, capital and depreciation, all considered.

DAIRYING.

A. M. CARR, SALEM, OHIO.

Some Important Problems.

Handling of milk to raise grade of creamery butter.

Some Pertinent Questions.

1. How shall we raise our butter standard?
2. Will the balanced ration and sanitary barn help to solve the problem?
3. Is dairying profitable as a side line or make-shift?
4. Should the milker be allowed to use wet hands?
5. How many times should the cream be gathered and hauled to town in a week?
6. Is it a good plan to gather milk from different patrons and place all in one tank?

THE DAIRY.

D. H. WILEMAN, RAVENNA, OHIO.

Some Pertinent Questions.

1. Would it not be advisable to have one dairyman, that has made a success with his own herd, financially, as a speaker at every institute?
2. Does the silo that is filled with immature corn give the results that the one filled with mature corn will?
3. Is it best to raise all the feed possible for the dairy on the farm and buy some protein feed to balance the ration; or buy a mixed dairy ration?
4. Conditions being equal, do you think it best to sell milk or cream from the farm?
5. Will it pay to test each cow's milk and weigh it?
6. Is it possible to get the best possible results from a dairy without using linseed meal?
7. Does the winter or summer dairy pay best?
8. Is it possible to ventilate a stable properly with the doors and windows alone?
9. Would not many farmers be better off with fewer cows of a better grade?
10. At what age should a heifer drop her first calf?

SHEEP.

C. O. PATTRIDGE, NEW YORK.

Some Important Problems.

1. The securing of a good shepherd to look after and care for the flock.
2. A location where soil is dry, or well drained and lay of land is rolling to slightly hilly.
3. A proper dog law that will require the dog owners to restrain his dog at home, same as sheep owners are required to do with their sheep.

SHEEP.

R. W. PALMER, PATASKALA, OHIO.

Important Problems for Sheep Breeders.

1. Future of fine wool breeds.
2. Development of coarse wool breeds.
3. Popularity of new sheep breeds.
4. Sheep considerations at fairs and Expositions.
5. Marketing conditions for fat sheep.
6. Mutton as a solution of meat problem.
7. Control of sheep diseases and parasites.
8. Extermination of the sheep-killing dog.
9. Proper solution of the wool question.
10. Problem of regulating importation of sheep.

Some Pertinent Questions.

1. Is it more economical to feed native or range-fed lambs?
2. Is fat mutton production more profitable than beef production?
3. Are wethers more profitable feeders than lambs?
4. Should mutton breeds be crossed for raising feeder lambs?
5. Is it advisable to keep fine wool sheep and cross with mutton rams?
6. Is silage to be recommended for feeding fat sheep?
7. Should corn be fed to breeding ewes during pregnancy?
8. Is it advisable to feed clover hay exclusively to breeding ewes?
9. What kind of grain should be given lambs at weaning time?
10. Are weeds in pasture good for sheep?
11. Is a medicated salt sufficient treatment for stomach worm eradication?
12. Will one year's cultivation free pastures of sheep parasites?

13. Does revised tariff on wool affect local wool markets or not?
14. At what time should wool be sheared to make best fiber?
15. At what age should ram lambs for feeding be castrated?
16. Should rams ever be used to breed as lambs?
17. How many years should one ram be used on same ewes?
18. Can two rams be turned with breeding flock with good results?
19. What sized flocks should mutton sheep be kept in?
20. Would dog-proof fences around sheep pastures be practical?
21. Does the show circuit injure young ewes for breeding in later years?
22. Should aged ewe classes include only those that have raised lambs?
23. Why are English or Canadian fitted sheep larger than American sheep?
24. Are lambs from large highly-fitted imported sires as hearty as those from rugged native bred sires?
25. Would American sheep production be benefited by barring importation of any foreign bred sheep?

SHEEP.

By L. W. SHAW.

Some Pertinent Questions.

1. What particular breed suits our location best?
2. Which is the most profitable ewe flock, the pure bred or the grade?
3. How far should we go in cross breeding until we return to a sire of the original breed?
4. Do cross bred lambs make better gains on the same amount of feed than pure bred?
5. At what age should we market our lambs?
6. Should we force the ram and ewe lambs we wish to retain as breeding stock, with the lamb creep the same as we do those intended for slaughter?
7. How do you feed and care for the lambs you wish to make weigh 80 pounds at 4 months of age?
8. What is the percent of increase for which you are striving?
9. What is the length of time required as the feeding period of a bunch of yearling wethers or ewes to be the most profitable to the feeder? (market fluctuations not considered.)
10. Does it pay to shear before marketing?
11. Does it pay to allow other stock to graze your sheep pastures?
12. Does it pay to allow your sheep the same run of the fields during the winter months, you wish them to graze the following summer?

13. Can ensilage be used profitably as a part of the sheep's winter ration?
14. Is it economy to buy linseed or cotton-seed meal to feed your flock?
15. Does it pay to sow rape in the corn field for fall pasture for the lambs?
16. Is it as dangerous to allow the sheep to graze very dry rape, as it is to graze very wet rape?
17. What simple treatment makes bloat unknown to the flock?
18. What will the Woolen Mills have to do to induce the American farmer to be as particular in marketing his wool, as the Australians?
19. What length of staple is the most profitable to produce?
20. Which is the most objectionable feature, too much or too little oil in the fleece?
21. Is it possible for a sheep to be a Mutton sheep in every sense of the word and carry a good merino fleece?
22. What has been one of the principal factors in making the baby mutton business unprofitable the past season?
23. Taking everything into consideration, what month do you prefer to have your lambs dropped?
24. What does it cost annually to keep the average brood ewe?

SWINE.

C. H. YATES, OAK RIDGE, VA.

Some Important Problems.

Proper mating of select individuals.

Care of young at farrowing and up to maturity, or until ready to market.

General conditions for health, such as sanitary surroundings, pure drink water, clean troughs and vessels free from parasites (internal and external), sleeping quarters (warm, clean and dry.)

Proper food for development, as forage crops with a balanced grain ration for developing the hog at the least possible cost to the producer — mineral matter, etc.

Some Pertinent Questions.

1. What forage crop has proven to be the best and cheapest for growing hogs?
2. What makes the best permanent pasture?
3. What should be the weight of an eight month's old hog?
4. What is the cost of production?

5. What is the most profitable way of developing a hog of eight months for market?
6. What breed of swine will bring the farmer the greatest profit at eight months old?
7. Objections to different breeds? What things are favorable to different breeds?
8. What is the best means of freeing hogs of parasites? (Internal and external).
9. What is the most economical way of housing a herd of hogs during the winter? What is the proper way for the health of the herd?
10. What is the proper care of winter pigs? Are they ever as profitable as spring pigs?
11. What number of sows can be safely mated to one boar?
12. What is the proper way to handle young boars in the herd?

HOGS.

W. H. FISHER, POWELL, OHIO.

Some Pertinent Questions.

1. Would not community breeding of pure bred swine bring a market to the farmers with less expense than by promiscuous breeding?
2. Should more hogs be grown outside corn belt?
3. What will cause this?
4. Should farmers spend more time among their hogs?
5. What are some of the beneficial results of frequent handling of the hogs?
6. Is enough attention paid to the minor ailments, such as milk fever, rheumatism, coughs?
7. Do farmers understand that dust is fatal to many hogs?
8. Give advantages of the "A" shaped house for summer and winter—size 6 x 8 with no floor?
9. If the serum-simultaneous treatment is accomplishing good, why does not the Canadian Government adopt it?

POULTRY.

JOHN W. YANT, CANTON, OHIO.

Problems.

1. Good breeding.
2. Close culling, fancy and utility flocks.
3. Great care in putting high class poultry and eggs on the market.

4. Utility poultrymen to breed from best females selected in the late fall and housed in open front, and plenty of exercise.
5. No eggs before hatching time.
6. Males allowed with females in breeding season only.
7. Study of the feed problem.
8. Good environment.

POULTRY.

MRS. GEORGE E. SCOTT, MT. PLEASANT, OHIO.

Some Important Problems.

1. Do you like the business? If not failure is sure.
2. A dry, comfortable place for the hens.
3. Choice of breeds—many good ones.
4. The feed problem—a study—follow nature's plan, as nearly as possible.
5. Disease—cause and remedies.
6. Incubation—the better way.
7. Selection of eggs for hatching. Infertile eggs. What is a good hatch?
8. Shipping eggs for hatching.
9. Enemies, and how to exterminate them.
10. Care of the chicks for 48 hours.
11. The first feed. The chicks from 1 to 6 weeks old.
12. Culling the flock—early market.
13. The moulting season, and how to shorten it.
14. Ready for business.

Some Pertinent Questions.

1. Should the farmer raise more hens yearly?
2. Is it probable there will be an over-production in the poultry business in the next ten years?
3. Can the farmer and his family afford to eat 30 cent eggs?
4. What percent of an egg is albumen? What percent water? What are the other constituents?
5. What effect will the parcels-post delivery have upon the egg market for farmers?
6. Should eggs be sold by weight or dozens?
7. What is the relative food value of an egg as compared with that of beef steak?
8. What is the greatest record of eggs laid by a hen in one year?
9. When was this record completed? Who owned the hen, and who made the test?

10. What breed was this hen, and what age?
11. What is the object and benefit of the trap nest?
12. What is the advantage of the standard bred fowl?
13. What is the poultry raisers greatest enemy?
14. Is there any cure for gapes, except to remove the worm?
15. How can we persuade hens to lay eggs in winter?
16. What is the best method for packing eggs?

POULTRY.

A. A. CARVER, SEVILLE, OHIO.

Some Important Problems.

Variety—whether for eggs, meat, or both, or fancy or utility.
 Housing, feeding, marketing—Feeding for eggs. Feeding for meat
 Feeding for exhibition.
 Hatching and rearing of youngsters up to time they are out of
 danger (two weeks) very important to success.
 Mating for fertility and vitality very important to success.
 Housing and the number of birds to a house very important.
 The keeping of a daily record and the books showing at all times
 the expense and profits derived.

Some Pertinent Questions.

What line of the poultry industry to follow.
 Utility, fancy, market eggs or the combination of all.
 Which is my advice to the beginner after ten years with poultry,
 both utility and fancy.
 Those who are making the greatest success are those who combine
 utility and fancy.
 How to feed?
 When to market?
 Where to market?
 How to feed for eggs.
 How to feed for meat.
 The best method of housing and yarding at the least possible in-
 vestment.
 How to grade eggs and place in cartons for top prices.

POULTRY.

MRS. W. B. SMITH, HILLIARDS, OHIO.

Some Important Problems.

White diarrhoea, cause, cure, preventative, symptoms.

Black cholera, cause, cure and preventative.

The use and advantages of feed hoppers and sanitary drinking vessels.

Balanced ration for farmers' flock which have free range.

How to cut out the middleman at the present parcel-post rates.

Some Pertinent Questions.

1. Are chicks as strong hatched in incubator as under hens?
2. Is poultry business a paying proposition, or a side issue?
3. Why are not more turkeys raised at the present prices?
4. Which is most profitable, cross or full bloods?

POULTRY.

MRS. C. R. WAGNER, ARLINGTON, OHIO.

Important Problems.

1. Selection of breed with definite object in view.
2. Mating of strong, vigorous, healthy birds.
3. Proper shelter.
 - a. Free from dampness.
 - b. Ventilation.
 - c. Sanitary.
4. Proper Feed.
 - a. Quality and quantity.
 - b. Suited to age.
 - c. Suited to needs.
5. Proper care.
 - a. Regularity in feeding and watering.
 - b. Absolute cleanliness.
 - c. Eradication of parasites.

Pertinent Questions.

1. What am I keeping poultry for?
2. Shall I keep more than one breed? Why?
3. With a definite object in view, what breed or breeds shall I select? Why?

4. When and where shall I get birds to head my flock the coming season?
5. Is my poultry house free from dampness?
6. If not, how can I make it so?
7. Is the ventilation ample and arranged so as to prevent direct draft on birds?
8. How often should the house be cleaned?
9. After cleaning, have you ever found anything better than lime-sulphur solution to thoroughly spray with?
10. Do you ever spade and sow the chicken park to a growing crop? Better do it.
11. After cleaning house do you sprinkle dry, slackened lime over perches and floor?
12. Can you name the three Gs in poultry feed?
13. What amount of each should a chick have at one day of age, one week, one month?
14. When and how do you feed grain, cooked mash, grit and green stuff?
15. When and how often do you feed in winter? In summer?
16. What method of watering? How often? Temperature?
17. How do you handle the question of large lice, mites, gaps, etc.?
18. How do you handle roup, white diarrhoea, cholera, etc.?
19. Can above diseases be prevented? If so, how?
20. What is best method of freeing setting hens from parasites?
21. Do you set hens in regular house or in a separate room?
22. How many cockerels should be kept to 100 hens?
23. Are they allowed to run with flock at all times?

BEEKEEPING.

D. H. MORRIS, SPRINGFIELD, OHIO.

Problems of Importance.

- How to winter bees successfully.
- How to make increase.
- How to produce comb and extracted honey.
- Best methods of marketing honey.
- Bee disease and how to cure.
- The relation of bees to horticulture.

Twenty-four Questions Relative to Beekeeping.

1. What is the best way to get started in beekeeping?
2. What strain or race of bees is best?

3. What equipment should a beekeeper have?
4. What kind of hive should be used?
5. How many colonies can one man take care of?
6. What is a movable frame hive? Its advantage over a box hive?
7. Should the hives stand perfectly level or slant to the front?
8. Should a farmer produce comb or extracted honey?
9. How many kinds of bees are there in a colony?
10. How can a queen cell be told from the rest?
11. What is the best way to introduce a valuable queen?
12. How can one determine when a colony is strong enough to go through the winter?
13. What diseases affect bees?
14. What are the characteristics of American foul brood? European foul brood?
15. How are these diseases treated?
16. How can injury from bee moths be prevented?
17. Will beating tin pans, ringing bells, etc. stop swarms?
18. How may one know when bees are robbing?
19. What should be done in case of stings?
20. What kind of a place is best in which to keep honey? What should the temperature be?
21. What farm crops make best bee pasture?
22. What crops are most benefited by bees as pollinizers?
23. Do bees puncture and injure fruit?
24. What is pollen? Propolis? Slum-gum?

BEE CULTURE.

C. S. NEWSOME, ATHENS, OHIO.

Some Pertinent Suggestions.

1. Best "Italian Bee". They are more easily handled.
2. Well made *nine frame hives painted*—8 and 10 frame hives are used.
3. Hoffman frames, for a hive is fine—other kinds are in use.
4. A wire bee hat, to wear off the "timidity" in handling bees.
5. A bee smoker—Plenty of styles are made—but make your own.
6. Get "dry punk" wood for a good smoke and easy burner.
7. Substantial stand for each hive to set on—not jar others.
8. Hives should be about two feet from the ground—protected from skunks and toads and many other vermin—ants and weeds.
9. Supers, on hives about May 10th "Foundation in sections as starters."
10. Keep hives on hand for new swarms.

11. Face hives "South or East". Hurries them out in the morning.
12. Hives should be protected with tight coverings, non-leakable.
13. Movable bottom boards easily swept off in spring if necessary.
14. Hives should be three feet apart; easily worked among.
15. Study up a little on their habits, etc.
16. Get the start of your bees and keep it.
17. "Bee master" of your B's as you are of other stock on the farm.
18. Keep your bees up-to-date and you will find good sale for them.
19. Subscribe for a bee book. Good winter evening's reading.
20. Buy a sample hive to make up by—Super plans also.
21. Visit practical bee men and get ideas.
22. Get your eyes open to as good a thing as keeping bees.

BEEKEEPING.

EDGAR W. WILLIAMS, PIERPONT, OHIO.

Problems of Importance.

- How to winter bees.
- Diseases among bees.
- How to control swarming.
- Marketing the honey crop.

Pertinent Questions.

1. Should the farmer keep bees?
2. Are bees of any value to the farmer aside from the honey they gather?
3. What kind of bees should the farmer buy?
4. Should the farmer let his bees swarm?
5. Should the farmer run for comb or extracted honey?
6. How much should honey be sold for in a retail way?
7. Value of honey on the farmer's table.
8. What class produces honey the cheaper—the farmer or the specialist?
9. Should full sheets of foundation be used in sections and brood frames?
10. Should the farmer keep his bees pure?
11. How should honey be packed to ship it?
12. What kind of veil should be used?
13. Should honey be sold at different prices in the same community? If not, how can it be helped?
14. What kind of farming works well with bees?

GENERAL AGRICULTURE.

JOSEPH E. WING, MECHANICSBURG, OHIO.

Some Important Problems.

Under-drainage.
 Maintenance of soil fertility.
 Corn.
 Live-stock.
 Labor problem on the farm.
 The pastures.
 The road by the farm.
 The consolidated township school.
 The country church.
 The farm automobile.

Some Pertinent Questions.

1. Is under drainage deep and thorough enough?
2. To what expense can we afford to go to get near perfect drainage?
3. What is the best manner to cheaply and rapidly cover tiles?
4. Does our soil need limestone?
5. In what part of Ohio is limestone most needed?
6. How can we tell when we really do need limestone?
7. How shall we purchase limestone?
8. Shall the state grind it, by convict labor as does Illinois?
9. How fine shall it be ground?
10. How best and most cheaply distributed?
11. What is the function of limestone in the soil?
12. The part that limestone has played in building English, French and other European soils.
13. Why does not red clover grow as it once did?
14. How can you make it grow as it once did?
15. What is the use of Alsike clover, and what does it signify in lime need?
16. What are the simple needs of alfalfa?
17. When should alfalfa be cut to make best hay?
18. When should rock phosphate be used?
19. Can soil be built up without adding phosphorus and potassium?
20. What is the estimated annual waste per farm from poor methods and neglect of manures?
21. Do you advise reinforcing them with rock phosphorus?
22. What is advantage of early plowing?
23. What are the advantages and disadvantages of plowing with tractors?

24. Will it pay to keep seed corn from freezing?
25. Do we attempt to grow too late a variety for soundness?
26. How much corn culture can we afford to give?
27. Will a maximum crop of corn pay best?
28. How shall we save our corn stover?
29. What is the loss from not having the silo?
30. Is the feeding of baby beeves an industry especially adapted to Ohio conditions?
31. What is the dual purpose cattle for the farmer?
32. What types of sheep will surely pay on Ohio hills?
33. What are the essentials to success in feeding Western lambs?
34. Is the married laborer, living on the farm, an advantage?
35. What of profit sharing with laborers on the farm?
36. Do the pastures make as much as they might? Do they make as much as plow lands?
37. Should you feed the pasture with limestone and phosphorus?
38. How many pounds of beef may come from an acre of good grass per summer, with only the tax and the fence for expense?
39. Can the farmer afford to drag the road occasionally free?
40. Should the consolidated township school be set in a quite small village or out in the country?
41. How can we make the country church strong again?
42. Shall the farmer buy an automobile, or shall he content himself with a Ford?

GENERAL PROBLEMS.

ARTHUR LOUIS BRESLICH, BEREAL, OHIO.
President Baldwin-Wallace College.

The control of flies.
 The problem of good roads—making and maintaining.
 The future supply of timber for farm purposes.
 The social problem—especially entertainment for the young people.
 The high price of farm property making it impossible for young men to make a success of farming unless they have the support of their parents or other friends to assist them financially.
 The labor problem.

GENERAL.

F. P. AMES, ROCKLAND, OHIO.

Pertinent Questions.

1. How can the producer obtain more of the consumer's dollars?
2. Legumes as a substitute for stable manure.

3. Turnips as a fertilizer.
4. Catch crops.
5. Humus—its function.
6. Hot-bed management.
7. A practical method of controlling blights.
8. Co-operative marketing.
9. Co-operative buying.
10. Soy beans vs. cow peas.
11. Deep vs. shallow plowing and cultivation.
12. Ridge vs. level cultivation.
13. The weeds in the garden.
14. What does it cost to grow an acre of potatoes?
15. Economy in production.
16. Market gluts—how to avoid them.
17. Marketing culls.
18. Colorado nutmeg seed vs. home grown.
19. Home grown potato seed vs. northern grown.

The most important subject confronting us is the general proposition of economic marketing.

COUNTY EXPERIMENT FARM PROBLEMS.

By M. C. THOMAS, TROY, OHIO.

1. To get all interested and fully realize the importance and worth of a county experiment farm to the residents of a county.
2. The improving and keeping up of a farm, in such a manner that it will be a credit to the county.
3. To make the farm the center of all the agricultural activities of the county. I am trying to do this by inviting the Horticultural Society, Granges etc., to meet with us and picnic at the farm.
4. To get room enough to carry out all the various lines of experiments desired by our people, and above all to be able to grow enough pure seeds to any way near supply the demand.
5. After certain results have been obtained, to be able to get them before the farmers, in a clean cut, concise, practical way that all may understand.
6. The management of field meetings at the farm, that demonstration work may be shown the most effectively and speakers secured that will do the greatest good for the greater number.

Questions.

1. What variety of corn do you find best for our locality?
2. What variety of wheat yielded the highest, at the farm this year?

3. What variety of oats yielded the highest, at the farm this year?
4. Which is the best for us to grow soy beans or cow peas?
5. Is it necessary to inoculate the soil to grow soy beans?
6. What variety of soy beans would you recommend for this locality?
7. What is the best way to sow soy beans?
8. When is the best time to sow alfalfa?
9. Would you advise a nurse crop when you sow alfalfa?
10. How can other grasses and weeds be kept from crowding out alfalfa?
11. Do you notice any results from the use of lime?
12. What form of lime would you advise the farmer to use?
13. How can we tell when our soil needs lime?
14. Is lime beneficial, or detrimental to potato growing?
15. What kind of fertilizer is giving you best results?
16. Can the farmer mix his fertilizer, from raw materials, and get satisfactory results?
17. Would you advise growing rye to hog down?
18. Can you get as good a stand of clover where the rye is hogged down, as where it is harvested?
19. Is it profitable to hog down corn?
20. From what source can we purchase protein, cheapest and best, for feeding hogs?
21. When is the best time to prune fruit trees?
22. How, and when must I spray fruit trees for best results?
23. Would you advise a silo for the average farmer?
24. What, if adopted would bring about the greatest good to the farmers of the county?
25. Do you consider The County Experiment Farm a profitable investment?

APPLES.

S. A. BROOKHART, WAPAKONETA, OHIO.

Some Important Problems.

The Care of the Orchard from Planting to Bearing.
The Marketing of the Apple Crop.

Some Pertinent Questions.

1. What is the advantage of low top over high top?
2. What is use of sod mulch? How and when applied?
3. What is value of barn yard manure on orchard?
4. What is meant by grading the apples?
5. Should apples be sold by grade?

HORTICULTURE.

DAN ALBAN, JACKSON, OHIO.

Some Important Problems.

Soil fertility.

Control of insects and fungus diseases.

Conservation of Moisture.

Selection of varieties suitable to local condition.

Marketing to best advantage.

Sufficient help at proper time.

Enthusiasm enough among those who are not horticulturalists so they will plant all the hills of southern Ohio that are suitable, in fruit trees.

HORTICULTURE.

LUTHER B. YAPLE, CHILlicothe, Ohio.

Some Important Problems.

Packing, Packages and Marketing.

Selection of fruit.

Cultivation and cover crops for orchards.

Drainage.

Prevention of frost.

Some Pertinent Questions.

1. How far apart should the various orchard trees be planted?
2. Would you use fillers in your orchard? If so, what kind?
3. When is best time to plant trees?
4. What is best method of cultivation and cover crops for orchard?
5. What method of tree surgery, spraying and treatment for twig blight?
6. What is best varieties for home and for commercial orchards?
7. What are best varieties for northern, middle and southern parts of state?
8. What is best soil adapted for various sorts of orchard fruits?
9. What has been experience with new varieties compared with old and well-known varieties?
8. Discuss tile and air drainage.
9. Is it practicable for Ohio orchardists to protect against frosts?
10. Is the use of dynamite in orchard work successful?

CORN, WHEAT, OATS, RYE.

JOHN BEGG, COLUMBUS GROVE, OHIO.

Some Important Problems.

1. A thorough knowledge of the adaptability of grain and soil.
2. How to obtain best soil conditions by drainage, fertilization, cultivation, etc.
3. What rotation to practice.
4. Good market and good roads.
5. How best to dispose of their grain, whether as raw material or in some form of finished live stock products.

Some Pertinent Questions.

CORN.

1. Is the variety test any benefit to corn growers?
2. How deep should ground be plowed for corn?
3. Is it necessary to test seed corn?
4. How many times should corn be cultivated?
5. When should cultivation cease?
6. Which is better, deep or shallow culture?
7. Is drilled better than hill planting, all things considered?
8. At what stage of ripeness should corn be cut? Are large shocks better than small ones?
9. Does corn husked from the stalk weigh any heavier than shock corn?
10. Does it pay to feed sixty-cent corn to seven-cent cattle or six-cent hogs?
11. Does a corn crop add any fertility to the soil?
12. Will it pay to feed fodder for its manurial value alone?
13. What is a proper depth for planting?

WHEAT.

1. Is deep plowing necessary for wheat?
2. What is meant by a compact seedbed?
3. What are the advantages of a compact seed bed?
4. Is top dressing with barnyard manure better for wheat than to plow under manure?
5. What variety of wheat is best adapted to your soil?
6. How much seed should be sown on an acre?
7. Is fall sown timothy a damage to growing wheat?
8. At what stage of ripeness should wheat be cut? Can every farmer shock wheat well?

9. Does it pay to stack wheat or put in barn rather than thresh from field?
10. What is considered a good yield of wheat?
11. Does it pay to harrow wheat in spring?

RYE.

1. Is rye a profitable crop in your section?
2. Does it pay to grow rye for spring pasture and green fertilizer?
3. What uses are rye straw most valuable for?
4. Is rye as good nurse crop for grass as wheat?
5. Should rye shocks be capped same as wheat?

OATS.

1. Is oats production as hard on soil as wheat or corn?
2. How many bushel of seed per acre is best?
3. Is oats a good nurse crop for grass?
4. Why do we generally sow oats on our thinnest land?
5. Does it pay to plow corn land in spring for oats?

CORN.

C. G. WILLIAMS, WOOSTER, OHIO.

Some Important Problems.

Drainage.

Satisfactory rotations.

Soils well supplied with organic matter, lime and phosphorus.

Well prepared seedbeds.

Varieties of corn adapted to local conditions of climate and soil.

Well selected seed.

Seed corn properly cared for.

Individual ear germination test.

Seed carefully graded.

Adjustment of planter.

Early and frequent cultivation.

Some Pertinent Questions.

1. What soils are in need of under-drainage?
2. Name four desirable rotations which include corn.
3. Why is corn usually planted on sod ground?
4. In what ways can organic matter be supplied?
5. Of the three elements often applied in fertilizers, why is it that phosphorus is usually found most beneficial?

6. What are our cheapest sources of nitrogen?
7. How does stable manure compare with commercial forms of plant food for corn?
8. In what ways is it superior to commercial fertilizer?
9. In what ways is the latter superior to stable manure?
10. How does lime help the corn crop?
11. When should ground be plowed for corn, and why?
12. What implements are needed in preparing good seed beds for corn?
13. What is the most important consideration in choosing a variety of corn?
14. When should seed corn be selected?
15. How should it be cared for?
16. What is the loss from planting an ear of corn that will not grow?
17. Should corn be planted in hills or drilled?
18. What constitutes a full stand of corn, i. e., how many plants per acre, or per hill with distance apart of hills?
19. How can a perfect stand of corn be secured?
20. Is it practical to thin corn?
21. How early should cultivation of the corn crop begin and of what should it consist?
22. How frequently should cultivation be given?
23. What catch crops are adapted to seeding in corn?
24. Why is it desirable to have the ground covered with a growing crop the year around?
25. In which month is frost likely to do the corn crop most damage, May or September, and why?

CORN QUESTIONS.

D. W. GALEHOUSE, WOOSTER, OHIO.

1. Selection of seed from the standing corn.
2. Selection of seed at the time of husking.
3. Proper storage of seed in order to retain vitality.
4. Individual ear testing before planting time.
5. Fall and winter plowing vs. spring plowing.
6. Depth to plow.
7. Application of farm manures — when? how?
8. Drainage — cost of.
9. Preparation of seed bed.
10. Time to plant.
11. Depth to plant.
12. Application of fertilizers — kind.

13. Application of lime.
14. Cultivation of methods.
15. Harvesting the crop, (a) By hand, (b) Machinery, (c) Hogs.
16. The control of insect pests.
17. Barren stalks and smut.
18. Utilization of the crop.
19. Corn breeding test, (a) Variety, (b) Ear to the row, (c) Breeding plot.

CORN.

J. A. HUMMON, LEIPSIC, OHIO.

Some Important Problems.

- Well drained soil.
- Rich in humus.
- Well prepared.
- Good tested seed.
- Good climate conditions.
- A good farmer.

Some Pertinent Questions.

1. When is the best time to plow for corn?
2. When and how should we prepare the soil?
3. When should we plant?
4. Should we plant in hills or drill?
5. How deep should we plant?
6. Should we replant if the stand is below 75%?
7. How shall we cultivate? Deep or shallow?
8. How often should we cultivate?
9. Should we take off the suckers?
10. How best to get the most out of the crop after we raise it?
11. When should we apply manure to corn growing?
12. When should we apply fertilizer?
13. What is the best rotation with corn?
14. How often should corn be put on the same ground in succession?
15. What is the best method of cutting corn?
16. If we shock it, shall we husk by hand or machine?
17. What shall we do with the stover?
18. If fodder is left in field, what best to do with it?
19. Is corn put in silo better feed than dry?

GRAINS.

P. C. KNISELY, NEW PHILADELPHIA, OHIO.

Some Important Problems.

The Cob-rot in corn.
 Better seed.
 Purer seed.
 Clean seed.
 Well developed kernels used as seed.
 One variety in the community.
 A thorough preparation of the soil.
 Use of more manure.
 Use of lime.
 Liberal use of commercial fertilizer.
 Marketing the crop.
 Community buying and selling.

Some Pertinent Questions.

1. Should an appropriation be made to more thoroughly investigate cob-rot in corn?
2. How about County Experiment Farm as a means of testing varieties of seed and other experiments?
3. Do farmers get as much good from the Ohio Experiment Station as they can?
4. What are some of the best varieties of wheat?
5. Is there such a thing as a dwarf variety of wheat?
6. Do farmers realize the importance of well-developed kernels for seed?
7. Should we not get the opinion of our local miller and grain men as to the type of wheat best suited for grinding and for the general market?
8. Why the importance of early manuring and early plowing?
9. Why especially use phosphoric acid?
10. Does it pay to raise wheat when the average per acre is so low?
11. Should farmers not get out of the 13-bushels-per-acre class?
12. Can't we raise as much wheat per acre as is raised in Europe?
13. Why not if we put the conditions there?
14. Will corn always be king of crops?
15. Why is corn the greatest crop?
16. What is the value of the corn crop of the United States for one year?
17. What is the average for the last ten years?
18. Should we not be ashamed of this?
19. What are some of the means to increase the average yield of corn?

20. What is the greatest factor in producing good corn?
21. What is the home of the corn?
22. Why is a sod the best home for the corn?
23. Why is it important to grow a strong stalk early in the life of the plant?
24. Is there anything gained in ear row and variety tests?
25. Does it pay to change seed, especially in oats?
26. What are some of the ways in which the Agricultural Commission could help to increase the yield of the grain crop?

CORN.

G. C. Houskeeper, BOWLING GREEN, O.

Problems.

1. Humus.
2. Drainage.
3. Variety of Corn adapted to soil and season.
4. Good seed.

Questions.

1. Should corn land be well drained?
2. Will the yield depend largely on the humus in the soil?
3. Does humus hold moisture in dry weather, and tend to prevent damage in wet weather?
4. What is the value of a clover sod for corn?
5. How many tons of yard manure is most profitable per acre for corn?
6. When should manure be applied for best results?
7. About what is a ton of manure worth, on an average, applied to the corn crop?
8. What element of plant food does manure lack?
9. Will it pay the person using manure to use some acid phosphate?
10. Why will commercial fertilizers pay better when used in connection with manure?
11. Should the fertilizer be applied broad-cast or in the hill?
12. When should the manure be put on the land for best returns in the corn crop?
13. When should a clover sod be plowed — in the fall or winter, or just before planting?
14. Will it pay to disk the land before plowing?
15. How deep should the land be plowed?
16. How does a good seed bed help to hold the moisture in the soil?
17. Will a well-prepared seed bed hasten the sprouting of the seed and the growth of the young plant?

18. Does it pay to plant corn before the soil is warm, so it will come up quick and start vigorously?
19. How deep should the seed be covered?
20. Will it pay, in foul land, to cultivate before the corn is up?
21. How many stalks in a hill will give the best results?
22. Are certain varieties adapted to certain kinds of soil?
23. Is it safe to plant a field with seed obtained from a distance?
24. Why should seed corn be selected in the field while the corn is standing?
25. Why should the seed be dried as soon as convenient after it is gathered in the fall?
26. Will freezing injure seed corn if not well dried?
27. Does the growing of maximum crops depend on looking after all the little details?

CORN.

ROBERT DUN, SABINA, O.

Some Pertinent Questions.

1. Should ground be spring or fall plowed? Why and under what conditions and at what depth?
2. Is it harmful to plow ground very wet, even if very early in the spring?
3. In plowing under clover, is it better to break ground early or wait until clover acquires growth for the benefit of organic matter.
4. If we practice a corn, wheat, clover rotation, can we afford to purchase any ammonia in our fertilizer? If not, how do you account for the fact that it pays at the Wooster farm?
5. Shall we plant a large variety of corn and plant thin, or a small variety and plant thicker?
6. How shall we decide this question? Shall we plant our corn shallow and risk dry weather and ants, or plant deeper and weaken the vitality by struggle to come through?
7. If we are late in getting corn planted, shall we take our usual pains to get our ground in condition to plant; or plant in somewhat rougher ground and depend upon getting in condition afterwards?
8. Is a weeder a good tool to use for first cultivation? If so, why do farmers practically all discard them?
9. Shall we cultivate our corn when very small, or wait till larger in order to get a better job done?
10. How many times can we cultivate to obtain the largest net profit? Shall we cultivate after tasseling?

11. Is it better to keep our seed corn pure as to variety; or in other words, is it better to pick our seed ears for their trueness to type or for individual merit regardless of breed characteristic?
12. Is a deep-grained corn always late in maturing? How can we deepen the grain of our corn without making it later in ripening? Where shall we stop in matter of deep grains?
13. What amount of 12-4 fertilizer shall we use on our corn if we use 150 pounds on our wheat and turn under clover sod every third year?
14. How shall we apply our fertilizer? Despite the fact that farmers are advised to apply with wheat drill, more than half apply in the hill after trying both ways.
15. Why would it not be better to *plow under* our fertilizer since we are advised to apply phosphate rock to our manure and plow both under?
16. Is an annual corn show a profitable thing for a community?

CORN.

HORATIO MARKLEY, MT. GILEAD, OHIO.

Problems of Importance.

1. The best possible seed for the locality.
2. The condition of soil as to fertility and moisture.
3. Method of cultivation including the question of tools.
4. Taking advantage of seasonal conditions.
5. How best to use or dispose of the crop.

Pertinent Questions.

1. How find best variety for your farm?
2. How would you conduct a variety test?
3. What is corn breeding?
4. How to conduct an ear to row test plat?
5. Would you select seed from the standing corn and why?
6. Give four reasons for field selection?
7. What is best method of caring for seed?
8. Is a testing box for individual ears worth while?
9. Give three reasons for rejecting butt and tip grains.
10. Give two reasons in favor of checked corn.
11. Give two reasons in favor of drilled corn.
12. How deep would you plant corn, and why?
13. Is a well-firmed seed bed best, and why?

14. Would you harrow before corn comes up after planting?
15. Do you favor using harrow or weeder after corn is up?
16. How deep should first cultivation with cultivator be?
17. How deep should subsequent cultivation with cultivator be?
18. How many cultivations in ordinary season?
19. Give reason for level cultivation or otherwise.
20. When should cultivation cease and why?
21. Why is a riding cultivator better than walking?
22. What great good do you get from using extra shoes on planter?
23. Is a cover crop sown on the corn a damage or help to it?
24. Name four cover crops to be sown at last cultivation.
25. Have you found hogging corn profitable, and why?
26. Have you sown soy beans with corn to be hogged off?
27. Have you sown rape with corn to be hogged off?
28. Why not do both? (It pays).
29. Does it pay to cut the corn to be husked?
30. Which is cheaper, hand or machinery cutting?
31. Which is cheaper, hand or machinery husking?
32. Does it pay to shred the fodder, and why?
33. Does it pay you best as a rule to feed or sell corn?
34. If you feed to hogs, what time of year pays best?
35. How many pounds of pork will a bushel of corn make fed alone?
36. How many pounds of pork will a bushel of corn make fed on clover pasture?

CORN.

JAY LAWRENCE, COSHOCOTON, OHIO.

1. Do you grow your own seed? If not, why not?
2. If you buy your seed do you order it from seed houses or from the farmers who grow it?
3. Do you order it shelled or on ear?
4. If you grow your own seed, when and how do you select it, and how do you take care of it over winter?
5. What do you consider a bushel of *good* seed corn worth?
6. Do you test your seed?
7. Do you realize that if fifteen dead ears of corn are planted in a field of good fertility that you are losing \$100?
8. Do you buy seed from a man who guarantees 95% of his seed to grow; if so, do you buy sheep from a man who says that only 95 out of every 100 are living and that the other five are dead?
9. What are the advantages of fall or winter plowing?
10. How do you prepare your soil for planting?

11. What is the advantage of tile drains?
12. What rotation do you use with corn? Why?
13. How often do you cultivate your corn? Why?
14. What are your objects in cultivating?
15. Why should we not practice deep cultivation?
16. How deep do you cultivate?
17. Is the idea correct that corn should be cultivated deep in a dry season and shallow in a wet one?
18. In your opinion, what one thing limits the yield of a corn crop more than anything else?
19. How deep do you plant your corn? Give reasons for this.
20. What methods do you pursue in trying to increase quantity and quality of your corn?
21. What is the average yield of corn in Ohio?
22. Do you realize that with an 80% stand and each stalk bearing a little nubbin weighing only 4 oz. will produce this yield?
23. Was your boy in the corn contest last year?
24. Can you name two of Mr. Sandles' objects in promoting these contests?
25. Who has been named the champion corn grower of Ohio? What was his yield? Do you know what the highest yield on record is?

MARKET GARDENING.

A. SHIRER, DAYTON, OHIO.

Some Important Problems.

How to increase economically and practically the fertility of the soil.

Scientific rotation of crops.

Best tools and methods of cultivation.

Irrigation.

The fight on insects and fungi.

Size of farm for man of limited capital, for a retail market.

Should vegetable and berry growing be combined.

Some Pertinent Questions.

1. Relative merits of stable manure, commercial fertilizer, green crops, lime and wood ashes to increase the fertility of the soil?
2. Is rotation of all crops absolutely necessary?
3. What should be the difference in drainage in cultivating sandy loam, sandy clay, and clay? What difference in tools employed?
4. What is the best system of irrigation?

5. What should be the cost of irrigation of five-acre plot?
6. What is the best method of fighting insects and fungi?
7. Is small or large tract best for market gardener of limited means?
8. Is parcels post a benefit to the market gardener?

MARKET GARDENING.

C. C. HALE, ROCKLAND, OHIO.

Problems of Importance.

How to pay enough labor at present prices and give small truck, vines, etc., the proper cultivation, as we think it necessary to have at least once every ten days.

How to buy manure and fertilizer and get enough benefit to pay extra cost of high fertility.

Pertinent Questions.

1. How to control striped melon beetle?
2. Which is the cheaper, to pay \$1.50 per ton for stable manure and haul two or three miles, or use commercial fertilizer and green crops, and which is best for land?
3. Would it be possible to make some law in regard to seedmen sending out old poor seed and not true to name? The money back is of very little benefit compared to loss?
4. Some way to control the disease of tomatoes.
5. Is the free package a money maker for the gardener?

TRUCK GARDENING.

FRE PATTON, CADIZ, OHIO.

Some Important Problems.

1. The lack of knowledge in both growing and marketing of the product.
2. Not getting close to the consumer — cutting out the middleman's profit.
3. Lack of disposing of his surplus and second grade products.
4. Scarcity of efficient and sufficient help.
5. The lack of the right soil and location as well as knowing how to pack and manufacture his surplus products into articles of food to be sold later in the year.

Some Pertinent Questions.

1. The trucker as a man.
2. Their mission as a producer.
3. Crops that go to make a so-called truck farm.
4. The knowledge of crop growing. Diseases, Insects, Fungus.
5. The selection of crops. Seed, Preparation, Hot Bed.
6. Location of Trucking ground.
7. Soil.
8. Water supply for irrigation and washing.
9. Distance from market.
10. Demand of the market.
11. Grading of products.
12. Conditions of products when marketed.
13. Truckers personal appearance when in market.
14. Disposing of surplus and second grade product. Canning, Pickling, Butters, Jams, Jellies and so forth.
15. Maintaining the fertility.
16. Earliness increased by use of fertilizer.
17. Keeping frost off by smudge fires and other means.
18. Necessary tools.
19. Labor problem.
20. Creating a regular market.
21. Building up a reputation.
22. Product should be known by the name of the farm.
23. Encourage customers to visit farm during the growing season.
24. Every available means should be used to keep the good qualities before the people.
25. The business belongs to men of small means.

PROBLEMS OF VITAL INTEREST TO GARDENERS.

1. Cheapest and best form of plant food.
2. Conservation of the soil moisture.
3. Best source of pure seed.
4. The most satisfactory methods of packing produce for market.
5. The best methods of marketing produce.
6. The relation of Parcel Post and the marketing of vegetables.
7. Good Roads as an aid to the market gardeners.
8. The best solution of the Labor problem.
9. Cover crops as a means of keeping up the organic matter in the soil.
10. Practical plant selection work for the market gardener.

Questions.

1. Is fall or spring plowing best for market garden crops?
2. What are the best tools for the market gardener?
3. What is the best way to supplement the manure with commercial fertilizer?
4. Is discing the manure into the soil before plowing practicable?
5. What is the best cover crop for the market gardener?
6. What rotation of crops is the most practicable for the market gardener?
7. Can the market gardener afford to install an irrigating system?
8. For what kinds of vegetables should the gardener grow his own seed?
9. What package is best for general use when vegetables are not shipped?
10. How large an area must a gardener have before he can afford an auto truck?
11. Which is the best plan of selling market garden produce at a retail or wholesale market?
12. What kinds of vegetables can be shipped satisfactorily by Parcels Post?
13. How can the market gardener secure and hold sufficient and efficient help?
14. Is the profit sharing plan of hiring labor suitable for the market gardener?
15. In what way can the State University help the market gardener?
16. In what ways can the Experiment Station help the market gardener?
17. What changes are needed in connection with the market gardening display at the State Fair?
18. How can the County fairs be made of greater benefit to the market gardener?
19. Should the market gardener lend encouragement to better highways?
20. What insects are of greatest economic importance to the market gardener?
21. What diseases are most disastrous to market garden crops?
22. Should the market gardeners join market gardeners' organizations?
23. What is the best method of handling manures when used on a market garden?
24. Should the market gardener give his children a college education?
25. Should market gardeners take time for picnics, ball games and other forms of amusement and recreation?

BETTER BREAD.

MARY E. ANDERSON, CLINTON, OHIO.

Problems of Importance.

How to so handle the bread as to have uniform results in all kinds of weather.

How to make a whole wheat or graham bread that shall be as palatable as white bread.

Pertinent Questions.

1. What is the difference between spring wheat and winter wheat flour?
2. To what kind of baking is each adapted and why?
3. What is the difference between graham and entire wheat flour?
4. Name three tests by which good flour may be known?
5. How tell when compressed yeast is good?
6. How tell when dry yeast is good?
7. Of what use is sugar to yeast?
8. What causes bread to become sour?
9. Why do we knead bread?
10. What is the proper temperature for bread-dough while rising?
11. What are the purposes of baking bread?
12. Why should biscuits, batter cakes and other baking powder mixtures be baked immediately after mixing?
13. How does baking powder lighten dough?
14. How does yeast lighten dough?
15. Give a simple method of telling a moderate oven? A hot oven?
16. Give proper time for baking, and kind of oven for biscuit, pie, bread and cookies.
17. What is the difference between good pastry flour and good bread flour?
18. What is the difference in appearance and digestibility between the use of lard, butter and beef drippings as shortening?
19. Why should all pastry be thoroughly cooked?
20. What should be the temperature of the water used in making pastry?
21. How should bread be handled after removal from oven?
22. What are main characteristics of a good loaf of bread?
23. What is a good pie?
24. What is the advantage of having custards, etc., hot before pouring into crusts?
25. What are the essentials in baking powder?
26. Which is the easier of digestion — baking powder goods or yeast goods?

HOME BREAD BAKING.

MRS. F. W. JENNINGS, 61 W. 11th AVE., COLUMBUS, OHIO.

Important Problems.

- The value of time.
- How to choose materials.
- How the oven should be regulated.
- Time to allow in baking.
- The proper method of combining certain materials.
- Accuracy in measuring.

Pertinent Questions.

1. Is it cheaper to bake at home, or to buy baker's products?
2. Do you get better food values by baking at home, or by buying baker's products?

BETTER BREAD.

MISS PEARL DORSEY, MOUNDSVILLE, W. VA.

Problems of Importance.

- Good flour, good yeast, oven.
- Temperature, Proper baking.

Pertinent Questions.

1. Why is wheat flour better for bread than other cereals?
2. What is "strong" flour? "Weak" flour?
3. Tests? How care for or store flour? Why?
4. Nature of yeast plant? Upon what does it grow?
5. What temperature for rising?
6. What substance given off in rising? Its value to bread making.
7. Result of too high temperature? Too low temperature.
8. What causes poor flavor?
9. How keep oven temperature while rising?
10. Why use sugar in bread making?
11. Is shortening necessary?
12. How secure fine grain and texture?
13. Why knead? How long? Can we knead too much?
14. How long should bread rise?
15. Shape and size of loaf? How many in pan? Why?
16. How long baking? What temperature?
17. What does baking do for it?

18. How treat after taking from oven?
19. Why advocate whole wheat bread?
20. Advantage from toasting?
21. Is *one* kind of bread good for *all* digestions?
22. Is a bread mixer practical?
23. How old should a girl be before she learns how to make bread?
24. What is good bread? How judge it? Can all have good bread?

HOME BAKING.

INEZ PLOTNER, WEST MANSFIELD, OHIO.

Some Important Problems.

Accuracy.

Proper Utensils.

Effect of different combinations of materials.

Some Pertinent Questions.

1. What is known as the standard measuring cup?
2. Of what use is a spatula in baking?
3. Explain the difference between Winter and Spring wheat flour?
4. How long should bread be kneaded?
5. What is known as the Short Process bread?
6. What use would you make of the egg yolks if you were baking a cake requiring only the egg whites?
7. How long should baking powder biscuits be baked?
8. How can you tell when bread is raised enough?
9. How would you test cake to tell if it is baked enough?
10. What effect does the combining of corn-starch with flour have upon pie-crust.
11. What is the best kind of an egg beater?
12. Which is the most satisfactory — level or heaping measurements?
13. What effect do marshmallows have upon frostings?
14. Why do you beat the white of the egg?
15. What makes a cake crack when baking?
16. Why should flour be sifted?
17. What flavoring should be used in chocolate cake?
18. Should a cake be frosted at once when taken from the oven or allowed to cool?
19. What effect has lard on bread dough?
20. What is the easiest way to mix pie dough?
21. What kind of a rolling pin should be used?
22. Why is an earthen-ware bowl better for bread raising?

23. How should bread be cooled?
24. Is there any such thing as luck in baking?
25. Shall we do as our mothers and grandmothers did before us, or try new methods?

BREAD.

MRS. MARY STEWART, JACKSONTOWN, OHIO.

1. Flour (a) Kind or variety.
(b) Quality.
2. Yeast (a) Kind or variety.
(b) Quality.
(c) Care.
3. Making (a) Mixing.
(b) Raising.
(c) Moulding.
4. Baking (a) Oven.
(b) Time.
(c) Care after baking.
1. What constitutes a loaf of good bread?
2. Considered from an economic standpoint, which would be considered the better—bread baked at home or that purchased at bakery or store?
3. Considered from the standpoint of health, which product would be the better?
4. Taking both of the above viewpoints into consideration, what kind of bread would be the best—white, brown or whole wheat?
5. What can be said for and against the use of hot breads?
6. Are the objections against hot breads well founded, if they be properly made and well baked?
7. What can be said in favor of batter cakes, buckwheat cakes, waffles and like preparations for breakfast?
8. What may be urged against their continual use?
9. How do the cakes made from the new self-rising flours compare with those made in the old fashioned way—the house-wife adding her own leaven?
10. What has become of the old fashioned soda biscuit once such a delight on farm tables?
11. What are the essential things every girl should be taught regarding bread and bread-making?
12. Discuss the virtues of compressed yeast, hop yeast, dry yeast, etc.
13. What virtue have potatoes in bread?

14. For the farmers' kitchen, remote from gas, what fuel gives the most satisfactory results on baking day?
15. What should be the temperature of the oven when bread is put in to bake?
16. Should the temperature be kept the same throughout the baking process, or should it be increased or diminished as the baking progresses?
17. Is the oven regulated in the same way for cake and pastry?
18. Discuss the making of coffee cake, rusk and rolls with light dough as a foundation?
19. How often should baking day come?
20. Suggest a menu that might be prepared and cooked on baking day, utilizing heat not required for bread.
21. What constitutes a good pie?
22. What can be said for and against it as a simple finish to a meal?
23. Discuss the use of baking powders and cream of tartar and soda in cake baking.
24. Discuss the care of bread from the time of taking from oven until its putting away.

IMPORTANT PROBLEMS BEFORE HOUSEKEEPERS TODAY.

MRS. CHRISTINE D. LAWS, CLEVELAND, OHIO.

Important Problems.

1. The conservation of the health of the family.
2. Making the household budget, and deciding what percentage of income shall go for housing, food, clothing, education and recreation.
3. Serving meals that are well balanced rations and that contain variety.
4. Finding time for recreation.
5. Making the house practical and usable, as well as attractive and comfortable, without cluttering it up with too much machinery.

Twenty-Five Pertinent and Practical Questions of Interest to House- keepers of Today.

1. What makes the eternal distinction between housework and drudgery?
2. What is the greatest carrier of disease known to medical science, and how may it be controlled?
3. Of what should a child's diet consist the first three years?

4. How would you arrange a kitchen so as to accomplish the most work with the least expenditure of energy?
5. How may housekeepers feel sure that they are getting nothing but pure food?
6. Is it possible to set a table for two with nourishing, satisfying meals on an allowance of \$200 per year, this to include fuel?
7. What is the most restful color for a living room?
8. How would you ventilate a small bedroom with only one window and that directly beside the bed?
9. How would you improvise an ice box?
10. Which foods furnish the body with heat?
11. Which foods furnish the body with energy?
12. Which foods keep the body in repair?
13. Of what value is mineral matter to the system?
14. How would you make a small house look spacious?
15. In what way is the feather duster related to tuberculosis?
16. What is the general cause of moths, and how may they be eliminated to a large degree?
17. In hot weather what would you serve in place of meat?
18. How may the usual house cleaning be simplified?
19. Would you consider a clear soup a food? What part does it play in the dietary?
20. Why does a cake fall?
21. Why is fresh air especially necessary during sleep?
22. Why is it that home canned vegetables spoil so frequently?
23. How may the number of eggs called for in a recipe be reduced successfully?
24. How may under-ripe and over-ripe fruit be made fit to use?
25. Which is better — to have a great sufficiency of a few foods at a meal or small portions of a great number?

HEALTH.

MARY E. ANDERSON, M. D., CLINTON, OHIO.

Problems.

1. Colds.
2. Headache.
3. Toothache.
4. Defective Sight and Hearing.
5. Digestive disturbances.
6. Enlarged Tonsils and Adenoids.

Questions.

1. What harm comes from thumb-sucking?
2. Can toothache be prevented, and how?
3. Should people be vaccinated against smallpox?
4. Can typhoid fever be prevented? How?
5. How prevent spread of tuberculosis?
6. Is it necessary to have the so-called children's diseases?
7. What are some of the causes of headache?
8. Should children with defective vision wear glasses?
9. Do "children's diseases" do permanent harm?
10. Why are cuts dangerous?
11. Should a child who hurts his head be allowed to go to sleep?
12. Should children with whooping cough be allowed to go to school?

COMMUNITY WELFARE WORK OR NEIGHBORHOOD IMPROVEMENT.

MRS. JOSEPHINE L. NESBITT, NORTH HAMPTON, OHIO.

Six Difficulties Encountered.

1. Lack of interest in detrimental, prevailing customs and conditions.
2. Failure to realize the effect that environment has upon character.
3. The adage, "What was good enough for father is good enough for me."
4. Taxes, taxes, taxes.
5. Enmity, jealousy, professional knockers, the lack of co-operation and team play.
6. The failure to appreciate the benefits of efficient advertising.

Important Questions.

What is the object or purpose of human life?

Which is the greater determining factor in the formation of character, our inheritances or our environments?

Who is responsible for deaths caused from diseases emanating from cess pools and other insanitary surroundings?

If "What was good enough for father is good enough for me" why are you using the self binder instead of the grain cradle, the hay fork instead of the three prong pitch fork? Why are you so attached to your telephone, your automobile, the inter-urban car that passes your door?

Which is more important, running water at the barn for the live stock or at the house for the live wife and children?

How will centralized schools improve the neighborhood?

How will attractive home, school and church surroundings aid in producing a better crop of boys and girls?

Which will benefit the community most, a thorobred \$30,000 horse or a thorobred \$30,000 teacher?

Where do your boys spend their evenings between supper time and bed time?

Who is responsible if any of them are at the pool room, the barber shop, the corner grocery, the cross roads rehearsing profane and obscene stories?

What will be the cost of a centralized school building, modern in architecture, with assembly room, gymnasium, swimming pool, shower bath, library and manual training departments?

Why do you object to paying one dollar more per year for a place of this kind, when you willingly and regularly pay fifteen dollars or more per year for tobacco, cigars and other unnecessary?

What is your opinion about warm lunches at noon for school children?

Which comes first, education or progress?

Which is the most important factor in business, labor, capital or management?

How may co-operation and team play be secured?

Will skillful advertising benefit a community?

What are some of the advantages to be gained by living in your community? What are some of the disadvantages?

Is every home, school and church in your community a beauty spot?

Have you a first-class modern school with all necessary equipment to fit my child for life's duties? Have you a live wide awake church that caters to the community needs?

What sort of social life does your community afford?

Why is your community superior to others?

Why are bad roads more expensive than good roads?

Why does your county superintendent usually object to a change of better method in road building?

How will the County Experiment farm aid our community?

How does higher education help us in every day life?

What relation do the home, school and church bear to each other in community betterment?

If every farm in your community bore an individual name, how would the community be benefited?

If efficient advertising will benefit a city why will it not be of as great benefit to a rural community?

SCHOOLS.

J. R. CLARKE,

Supervisor of Agricultural Education, Columbus, Ohio.

1. The schools can and ought to be of more service to the farm: How?
2. We need more uniformity in text books.
3. The high school and the four-year course in Agriculture in these high schools in reach of every farm: How? Why?
4. Centralized schools, — and good roads: When? How? Why?
5. The standardized school — what is it? How obtain it? Why?
6. Our Agriculture and our study of it in the schools and colleges.

Important Questions.

1. Are our children trained for or away from the age in which we live?
2. How make the indifferent different? (This refers to any farmer or his teacher.)
3. What sort of a patron to the school is the average farmer?
4. Pay the scrub and thorough teacher the same: Why?
5. How get rid of the small school district that does not pay?
6. We need larger incomes for many of our schools: How?
7. Manual training, shop work, machines and motors in our school courses: How? Why? Why not?
8. Rural hygiene — what is it? What about it? Can we avoid typhoid and tuberculosis?
9. Who or what is responsible for educating the country boy away from the farm?
10. Shall we have a county board of education for all of our schools? Will it be better than so many small boards? How?
11. The country boy — is he given an equal chance with the boy in the city in acquiring an education?
12. What powers has a teacher? How help them use them?
13. How educate a board of education?
14. What is a lecture course? Are such things feasible in the country?
15. Does the country boy have vicious habits peculiar to him?
16. How about a special teacher in Agriculture for about twenty-five schools?
17. Some teachers are big but lost: Why? Many of them are a passing show: Why?
18. Shall we have a larger fund from our state treasury for support of our schools? How? Why? When?
19. Of what use are our superintendents? How may they be more useful? How may we help them?

20. What qualifications should a good county superintendent have? A good district superintendent?
21. State aid to the weak district at the right place, at the right time and to the right person: How?
22. How get better trained teachers for the work in Agriculture in our rural schools?
23. How unite two or more school districts?
24. How and what apparatus and libraries for our rural schools? Ought the patrons be consulted in these matters? Are they not?
25. Fewer and better schools in our rural districts; a scale of wages for the teachers; all schools standardized. How? When?
26. The three county normal schools; what are they? How obtain them? How make them useful to country folks and rural life?

QUERIES.

H. F. FRICKE, COLUMBUS, OHIO.

1. Is it economy and good farming to plow clay, or land of that class, early in the spring, while it is wet, so as to be able to say: "I have all my plowing done;" then let it lay in plow furrows to dry out, thereby losing all of the moisture in the ground by evaporation; and also, when ready to plant, or the ground has dried, it takes a half day, per acre, to get the dry, hard ground in shape, with disc, harrow and rubber:—yes, and sometimes a maul, to break the clods so as to have loose ground enough to plant or sow, and then wait for a rain so as to have moisture enough to germinate the seed; not only that but having the ground "killed" for several years?
2. Would it not be better to put off plowing—if it must be done in the spring—until the ground was dry enough, then harrow or pulverize, every day, the ground plowed that day, thereby saving lots of time in getting the ground in shape, as it would not be so hard and would work up easily, and in a week or ten days later harrow again, thereby conserving the moisture that is in the ground, and also by the repeated harrowing allow the warm air to get into the soil so as to make earlier planting and a quick growth possible, it not being necessary to wait for a rain, and then by the first of June be farther along with farm work and have a better and healthier stand of crops than by following the first method?

FARM ARITHMETIC.

1. Give the machinery cost per acre of cutting 10 acres of wheat.
Give the machinery cost per acre of cutting 20 acres of wheat.
(Machinery cost to include interest on investment, depreciation, repairs and oil).
2. A huckster wants 90c to handle a 30 dozen case of eggs, suppose the case contains 3 dozen "rots" total loss. 2 dozen "dirts" and "checks" sold for 10 cents per dozen, the balance sold for 20 cents per dozen. How much can the huckster pay the farmers per dozen for the 30 dozen eggs?
How much could have been paid if the eggs had all been first class?
3. A farmer has a field of corn averaging 60 bushel per acre. Corn sells for 60 cents per bushel. Supposing 1 bushel of corn will make 10 pounds of pork and hogs sell for $7\frac{1}{2}$ c per pound. Husking 6 cents per bushel. Which will make the most money, turn hogs in on the corn, or husk the corn and sell it?
4. What will it cost per acre per annum to fence a square field of 1 acre?
What will it cost per acre per annum to fence a square field of 10 acres?

C. P. Funk, Wooster, O.

1. What will be the value of time lost in farming around a pond, 8 rods wide, 10 rods long, located a little to one side of the center of a field, 125 rods long, 80 rods wide, when farmed in corn—Field to be plowed in one piece with a 12-inch plow, harrowed four times twice each way with a 10-ft. harrow, planted with a check rower—rows 3 ft. 6 in. apart—to be worked four times with a one-row worker—twice each way—and harvested with a corn binder. One minute to be counted for every extra turn caused by the pond—time valued at 40 cents per hour, the price of 5 bushels of corn at 60c per bushel to be added for corn destroyed by extra turning?
2. If a pond containing $\frac{1}{2}$ acre can be drained for fifty dollars, how many crops will it take to pay for the drainage under a four-year rotation of corn, oats, wheat and meadow—the land producing 75 bushels of corn, 50 of oats, 25 of wheat and two tons of hay per acre—corn to be valued at 60c, oats at 38c, wheat at \$1.00 and hay at \$12 per ton?

J. A. Hummon, Leipsic, O.

1. If an automobile cost \$900 and a man runs it for 10 years, allowing 6% interest and 4% repairs, what will he have in the investment at the end of ten years?
2. A man buys a horse, buggy and harness for \$300, and after $2\frac{1}{2}$ years trades his buggy for a new one and gives \$70 difference. Allowing 6% interest and 2% for repairs, what will be the amount of his investment at the end of five years?
3. If farm machinery equipment costs \$1000 and the depreciation is 5% per annum by proper use and shelter, and if by the careless method it is 10%, how much would the difference provide for the household equipment per annum?
4. Allowing 7 sq. ft. for a 55-lb. lamb, how many can be housed in a barn 40 ft. x 100 ft?
5. If corn is worth 6c a bushel, and is fed to hogs, allowing 10 bushels of corn for 100 gain, what will be the gain by feeding if hogs are worth 7c a pound?

J. L. Buchanan, Sherodsville, O.

1. A Jersey cow gives 25 lbs. of 6% milk; a Short Horn cow gives 40 lbs. $4\frac{1}{2}\%$ milk. Which is the best farm cow, providing they consume the same amount of food?
2. Which is the best proposition? A pair of 5 year old brood mares worth \$300, or a pair of \$600 mares, same age, providing each pair is mated to stallions of same grade and each mare produces a colt each year for four years?
3. Which is the best business proposition for the young man? \$25 per month, board, washing, horse furnished or kept, or \$50 city job with no reimbursements?
4. Which is the best investment for a boy 16 years old or over. A pure bred draft mare, a pure bred dairy cow, or a pure bred brood sow, providing boy has equal admiration and ability to care for each kind of livestock?
5. Which is the cheapest for the farmer? A good hand at \$25.00 per month and furnished with horse, etc., or a married man who boards himself with \$250 cash, cow kept, 600 lbs. live wt. pork, 20 bushel wheat; all the wood needed, house, garden, truck patch, team furnished for hauling coal, etc., horse at will and 8 to 10 holidays furnished?
6. Figure out which is the best investment for a farm boy, an 80 acre farm or a 4 year Agricultural Course at O. S. U.

W. F. Dobbs, Windham, O.

1. A has two cows, No. 1 weighs 900 pounds and gives an average of 25 lbs. of milk per day with an average test of 4.6. No. 2 weighs 1200 lbs. with an average of 40 lbs. of milk per day, testing 3.7. If each cow is fed a balanced ration in proportion to her weight and the weight of the milk she gives. If he sells the milk at \$1.60 per 100, which is the most profitable cow counting the deterioration of the soil by the removal of 12.5 lbs. solid matter per 100 pounds of milk, in the ratio of .5 nitrogen, .3 phosphoric acid, .2 potash?

If A makes butter from his cows and allows 25 cents per 100 for his separated milk, feeding it on the farm, and selling his butter for 35 cents per pound, which is the better cow and which is the most profitable farm management, estimating the loss of fertility at the ratio of 1% nitrogen, .5% phosphoric acid, .3% potash.

2. B keeps registered cows and sheep and is undecided which pay best, and concludes to test them. He selects a cow weighing 1200 lbs. giving 30 lbs. of 4% milk per day. He also selects 10 ewes, weighing 120 lbs. each. He soils the cows and sheep, feeding them the same ration by weight. If he sells his milk from the cow he losses 50% of the fertility that he wishes to keep on the farm. If the sheep produce 34.1 lbs. of manure per day, worth \$3.30 per ton, and the cow produces 74.1 lbs. manure per day, worth \$2.02 per ton, and the cow has one calf and each ewe has one lamb and shear 100 pounds of wool, and the lambs are sold at \$10.00 a head, and the wool at 25 cents per pound, at what price will he have to sell the product of the cow to equal the income from the sheep?

3. C buys a manure spreader on thirty days time, paying \$110, but discounts the bill at 2% at the end of 10 days. D buys the same machine on 3 years time, paying \$115.00, giving his notes payable $\frac{1}{3}$ in one year, $\frac{1}{3}$ in two years, $\frac{1}{3}$ in three years, at 6%. What per cent. is D paying "for the time" over what C pays for his machine?

Frank Blackford, Eldorado, O.

1. Peter grows 60 bushels of corn with $15\frac{1}{2}\%$ moisture test, and Paul 75 bushels of corn with 24% moisture test. Both crops are marked under schedule of grades advised by Dept. at Washington, at prices indicated.

No. 2— $15\frac{1}{2}\%$ to $17\frac{1}{2}\%$ (H ₂ O)	60c per bushel.
No. 3— $17\frac{1}{2}\%$ to $19\frac{1}{2}\%$	57c
No. 4— $19\frac{1}{2}\%$ to $21\frac{1}{2}\%$	53c
No. 5— $21\frac{1}{2}\%$ to $23\frac{1}{2}\%$	50c
No. 6—23 and over	45c

Who realizes the most on his crop—and how much?

2. Find the yield of each, on a 12% moisture basis.
3. Samuel has 5 cows—freshening at same time, and fed under like conditions the indicated amounts of feed. The butter fat from each was marketed at 30c per lb.

No. 1—60 pounds daily, 3.5 Butter fat, \$15.00 cost of feed.

No. 2—52 pounds daily, 3.8 Butter fat, 14.00 cost of feed.

No. 3—48 pounds daily, 4.1 Butter fat, 13.00 cost of feed.

No. 4—40 pounds daily, 4.5 Butter fat, 13.00 cost of feed.

No. 5—35 pounds daily, 5. Butter fat, 11.00 cost of feed.

Which cow makes Samuel the most money, and how much?

4. A man has 3 colts. The service of No. 1 is \$25.00; No. 2, \$18.00; No. 3, \$10.00. He sells them as three-year-olds—No. 1 at \$250.00; No. 2 at \$200.00 and No. 3 at \$150.00. No. 1 eats 50 bushels of oats annually, No. 2, 40 bushels and No. 3, 35 bushels. Oats being worth 32c per bushel. Assuming that all ate same of roughage and allowing interest upon service fee for 3 years, which was the most profitable, and how much?
5. John Doe grows corn and feeds hogs. He has 2 fields of 12 acres, each yielding 60 bushels each. Upon one he turns 75 head of hogs, weighing 90 lbs., on Sept. 10th. On Oct. 30th, hogs having cleared up the field, he markets the hogs at 180 lbs., at $7\frac{1}{2}$ c per lb. On Sept. 20th one hog died; on Sept. 30th another; on Oct. 10th another, and on Oct. 20th a fourth. Assuming a uniform gain, and deducting loss—on four dead hogs—and supposing he marketed the corn from other field at 60c per bushel, and counting $3\frac{1}{2}$ c for gathering, upon which field did he realize the greater gain, and how much?
6. How much lime drawn from the soil in an acre of $1\frac{1}{2}$ tons of rye straw, to total ash being 3.82% and 6% of ash being lime? Also, acre of 4 tons of alfalfa, 6.2% being ash and 30% of ash being lime.
7. With middlings carrying 15%—protein selling at \$24.00—what would the following feeds be worth?
 1. Bran, 16% protein
 2. Gluten meal, 29.3% protein.
 3. Malt sprouts, 23.2.
 4. Oil meal, 33.
 5. Cottonseed meal, 42.
 6. Soy beans, 34.
 7. Oats, 12.
8. How much of each of the following shall I use to produce the common brand of commercial fertilizer 1-8-5, 19% ammonia in nitrate of sodium, 14% acid phos. and 50% muriate of potassium?

9. How much make weight must be added to complete the ton?
10. If bagging costs \$1.60 per ton and freight \$2.50 per ton, and hauling \$1.25 per ton, what is the cost of the make weight? Is the make weight worth the money?
11. Assuming that a cow must have $3\frac{1}{4}$ lbs. of digestible protein daily, how much rye straw (2 $\frac{1}{4}$ % digestible protein) must she consume to secure it? Can she do it? And if 1 acre of rye yields $1\frac{1}{4}$ tons of straw, how many acres of rye straw would she consume annually? Would she have any time to produce milk?

C. C. Hayden, Wooster, O.

1. Milk weighs 8.6 lbs., per gallon. How many gallons are there in 100 lbs. of milk?
2. What is the value of 100 lbs. of milk containing 4 per cent. butterfat, if .08 per cent. of the fat is left in the skim-milk and the buttermilk, and if it requires $\frac{5}{6}$ of one lb. of fat to make 1 lb. of butter? Value the skim-milk and buttermilk (95 lbs.) at 25 cents per 100 lbs. and the butter at 30 cents per pound.
3. If a creamery pays 28 cents per lb. for butterfat in cream, what should they pay a farmer for 85 lbs. of cream containing 32 per cent. of butterfat?
4. If a cow consumes 36 lbs. of silage per day, how many tons will be required to feed her from Oct. 20th to May 10th, and what will it cost at \$3.50 per ton?
5. Cow A produces 10,000 lbs. of milk in one year and it costs \$70 to feed her. Cow B produces 5,000 lbs. of milk in one year and it costs \$60 to feed her. If milk sells for \$1.75 per 100 lbs., how much more profitable is cow A than cow B?
6. Cow No. 1.

The production of this cow is more than 1,000 lbs. of milk and 100 lbs. of fat above the average production of Ohio cows

Figure the profit at your home prices.

She consumed in one year:

1300.000 lbs. corn meal @ \$..... per cwt. -	\$.....
413.000 lbs. bran @ \$..... per cwt. - - -	\$.....
375.000 lbs. cotton-seed meal @ \$..... per cwt. \$.....	
.500 tons straw (bedding) @ \$..... per ton \$.....	
2.620 tons silage @ \$..... per ton - - \$.....	
.335 tons corn stover @ \$..... per ton \$.....	
.897 tons of hay @ \$..... per ton - - \$.....	
5 months pasture @ \$..... per month - \$.....	
Depreciation of cow - - - - - \$.....	

Interest on money invested in cow - - -	\$.....
Taxes on cow - - - - -	\$.....
Barn rent for cow - - - - -	\$.....
Labor in caring for cow and product - - -	\$.....
Total cost of keep - - -	\$.....
She produced:	
5,750 lbs. milk @ \$..... per cwt. - -	\$.....
10 tons manure @ \$..... per ton - -	\$.....
1 calf 5 days old - - - - -	\$.....
Value of product - - -	\$.....
Profit or loss - - -	\$.....
Or she produced:	
324 lbs. of butterfat @ cts. per lb.	\$.....
4,280 lbs. skimmilk @ \$..... per cwt. -	\$.....
10 tons manure @ \$..... per ton - -	\$.....
1 calf 5 days old - - - - -	\$.....
Value of product - - -	\$.....
Profit or loss - - -	\$.....

J. S. Houser, Wooster, O.

1. If each gallon of concentrated lime-sulfur is diluted with 7 gallons of water for spraying purposes, how many gallons of the lime-sulfur and how many gallons of water are used in making each 50 gallon barrel of spray material.
2. In preparing a stock solution of kerosene emulsion, one uses 1 gallon water, $\frac{1}{2}$ pound soap, 2 gallons of kerosene. For use upon plants, some of our books and bulletins advise diluting this stock emulsion to contain a certain percent of kerosene. How much water is added to each gallon of stock emulsion to make a solution which contains 20% kerosene; 15% kerosene; 10% kerosene.

H. A. Gossard, Wooster, O.

1. (a) Entomologists have ascertained that the female housefly lays 600 eggs in 4 layings of about 150 eggs to each deposit. If one female commences laying for the season, April 15th, and seven generations are produced by September 10th, or thereabouts, and each female of the descendants maintains the average of 600 eggs each, and one half of each lot of eggs laid produce female flies and the other half male flies, how many living flies, September 10th, can claim descent from the one fly that commenced laying eggs April 15th? The problem assumes that all eggs hatch and that no accidents befall any of the females until after they have laid all their eggs.
(b) If that original fly had obtained a drink of 2% formaldehyde solution early on the morning of April 15th, how many descendants would have developed by September 10th?

2. (a) There were, in Ohio, 272,045 farms in 1910, of an average size of 88.6 acres each. The farm and vegetable crops of all kinds were estimated in 1909 to be worth \$230,338,000. If the average annual loss through insect injury approximates 10% of the total crops produced, what damage did the state sustain in 1909 through insect damage?
 (b) How much injury, on an average, does each farm sustain if there were the same number of farms in 1909 and 1910?
 (c) How much each acre?

J. J. Crumley, Wooster, O.

1. At a given time of day, a stake 6 feet tall casts a shadow 9 feet long. What is the height of a tree whose shadow is 150 feet long at the same time?
2. How many trees can be planted on one acre of ground if the trees are put in rows 5 feet apart one way, and 8 feet the other?
3. The trunk of a tree is 50 feet long. The diameter at the two ends is 30 inches and 22 inchees. How many cubic feet in this stick?
4. From a 16 foot log, 13 inches in diameter, a square piece of timber can be cut $8\frac{3}{4}$ by 9 inches, and in squaring up the log, 4 boards 5 inches wide and one inch thick can be cut. Suppose the square stick is cut into planks 2 by 9 inches, how many board feet would the owner loose in selling this log by the Doyle Rule which figures it at 81 board feet?
5. How many board feet 1 in. thick can be sawed from a timber 10 inches square and 12 feet long, allowing the saw to cut $\frac{1}{8}$ of an inch?
6. Two logs are each 12 feet long. The smaller is 18 inches and the larger 3 feet in diameter. How many more cubic feet in the larger than in the smaller log?

B. E. Carmichael, Wooster, O.

1. (a) How much per hundredweight should be secured for cattle that are bought at a weight of 1000 pounds for 5 cents per pound and fed to a weight of 1500 pounds, the increase in liveweight costing 8 cents per pounds to produce in order for the feeder to neither gain nor lose? (b) Compute above with cattle costing 7 cents per pound, the increase in liveweight costing 9 cents per pound.
2. Allowing a daily ration of one pound of grain (oats or ear corn) and one pound of hay daily for each 100 pounds liveweight of horse,

how much would be saved annually by feeding ear corn instead of oats to two 1600 pound horses kept for work purposes, with the following prices per bushel for grain, mixed (clover and timothy) hay always charged at \$10 per ton?

Price per bushel. (68 pounds ear corn, 32 pounds oats).

<i>Ear corn</i>	<i>Oats</i>
40	30
48	36
56	42
64	48
72	54
80	60

3. If a ration of 9 parts by weight of ground corn and one part tankage produces 100 pounds of gain on hogs for 430 pounds feed consumed, and a ration of ground oats and tankage (9:1) produces 100 pounds of gain per 570 pounds of feed consumed, how much are ground oats worth per bushel as feed for hogs when ground corn is valued at \$20 per ton and tankage at \$50 per ton?
4. Assuming that the following mixtures are of equal value per pound for use in pork production, which would be the cheapest with corn at 40c, 60c, 80c, and \$1 per bushel, middlings always charged at \$28 per ton, linseed oilmeal at \$34 per ton and tankage (60% protein) at \$50 per ton?
 - (a) Corn, 9 parts by weight; tankage, 1 part by weight?
 - (b) Corn, 22 parts by weight; middlings, 1 part by weight?
 - (c) Corn, 4 parts by weight; linseed oilmeal, 1 part by weight?

W. H. Goodwin, Wooster, O.

1. (a) A man has 300 bushels of wheat which loses $2/5$ of its moisture content in storage. Moisture content originally 19%. He could have sold it for 82c per bushel, but after keeping it one year he sells it for 97c per bushel. Did he gain or lose, and how much?
 (b) Stored grain pests injured it to the extent of 2.3%. Did he gain or lose, and how much?
2. What is the capacity of a spray pump in gallons per minute at a speed of 30 strokes per minute. Diameter of cylinder $2\frac{1}{2}$ inches, length of stroke $4\frac{1}{2}$ inches.
3. With commercial lime-sulfur costing 20 cents per gallon, and diluted at the rate of 1 gallon to 7 gallons of water, 1 horse \$1.50 per day and labor costing \$2.50 per day, 2 men are able to spray 62 trees in a day, using a man power pump and putting on 248 gallons of spray. What was the cost of spraying one tree with lime-sulfur.

L. G. Spencer, Niles, O.

1. A has two cows. One gives 40 pounds of 3 and $\frac{1}{2}$ per cent milk in one day; the other gives 30 pounds of 5 per cent milk in one day: Which is the more profitable cow? What is the difference in the income from the cows in one year, if butter sells for 30 cts per pound, the cost of feed being the same for each cow?
2. What will it cost to build a "wooden hoop" silo, 12 by 30. The hoops are $2\frac{1}{2}$ by 4 inches, and the lumber cost \$2.00 per hundred and it takes 15 hoops. The lining costs \$30, per thousand. The foundation is four feet high and 18 inches thick, and costs \$3, per yard. It takes two men two days at \$3 each, to erect the silo.
3. Which feed is the cheapest for the dairy cow; bran that analyzes 14% protein or cotton seed meal that analyzes 45% protein; the bran costs \$26, per ton and the cotton seed meal \$36?
4. How long with a 12 by 30 silo feed 10 cows if each cow is fed 40 pounds of silage per day? (A cubic foot of ensilage weighs 40 pounds).
5. How large a silo should I build to feed 25 cows for eight months if each cow eats 40 pounds of silage each day?

P. C. Knisely, New Philadelphia, O.

1. If an acre of corn produces 18 tons of ensilage, $2/3$ of which is water, how much dry fodder will an acre produce providing it is only $\frac{1}{4}$ water?
2. What is the difference between the capacity of a 4 in. and a 3 in. tile?
3. If corn is planted 3 ft. 6 in. each way and there are 500 missing hills to the acre, what per cent of a stand would there be?
4. What is the difference in rods, fencing a square 10 acre field, and a 10 acre field twice as long as it is broad?
5. How many more turns would a team have to make in plowing a square 10 acre field, and a 10 acre field twice as long as it is broad, providing we plough a 12 in. furrow?

W. F. Copeland, Athens, O.

1. If every cat kills 50 birds a year; if a codling moth lays 200 eggs; if a chickadee will eat 200 moths a day; if every larva destroys an apple; if your cat destroys one chickadee; how much is your old cat worth?
2. If a bird destroys one bushel of seeds and bugs per year; if every county in Ohio averages 100 species throughout the year; if every

species averages 2000 individuals; how many car loads of insects and weed seeds are destroyed every day by Ohio birds?

3. If a bread mixer saves the average farm woman 2 hrs. a week or 2 weeks a year, and hence 2 yrs. in 50; at what wages per day has she labored for the 50 yrs., if a bread mixer costs \$1.75?
4. If the average farm woman lifts 1 ton of water per week, or 50 tons per year, and a gas engine costing \$50.00 would do the work, how many tons is handled for \$1.00, if the engine lasts 10 years; if it lasts for 20 years?
5. If skunks produce \$1,000,000 per year in pelts; if the white grub destroys \$100,000,000 per year in crops, what yearly tax do we pay as a tribute to our ignorance and neglect of the economic importance of the common pole cat?

H. Burkholder, Clyde, O.

1. Should the son who is helped through college be assisted equally afterwards, with the son who stayed at home and worked on the farm?
2. How many average Ohio farms would the cost of one of our latest battleships purchase?
3. If the barn is 4 rods farther from the house than necessary, how many unnecessary miles, approximately, will the average farmer travel in a year?
4. If a boy begins at sixteen to chew 25c worth of tobacco a week, has he chewed up a farm at seventy-five years?
Ans. Boy would chew about \$2,101 worth at annual interest; compound interest would be more.

G. C. Housekeeper, Bowling Green, O.

1. Mr. Ray covered his barnyard at a cost of \$300. Mr. Ray makes 100 tons of manure during the year. The manure in the covered yard is worth \$1 per ton more than that in an open yard. It took \$35 a year less feed in the covered yard. How long will it take to pay for covering the yard in the increased value of the manure and saving of feed?
2. How much less time will be taken in turning in farming a field 80 rods long and 20 rods wide, than a field 40 rods long and 40 rods wide?
3. John James planted 2 acres of potatoes. One acre was planted with his own seed which was badly sprouted and affected with rot, the other acre was planted with good seed for which he paid \$1.00

per bushel. He planted 15 bu. on each acre, and fertilized and cared for each the same. The acre planted with his own seed yielded 40 bushels. The one planted with good seed yielded 125 bushels. Potatoes at digging were worth 60c per bushel. What was the profit on the good seed?

E. A. Brenneman, Dayton, O.

1. A farmer stacks 40 tons of hay yearly. He receives an average of \$15 per ton. His loss is 200 lbs. per ton on account of bad weather. If he borrowed \$500 at 6% interest to build a barn for protection of hay, how many years until the barn is paid for by hay saved?
2. A neighbor had a 60 acre farm which he offered for sale at \$6,000, but found no buyer. He bought 6 gallons of paint, lumber for gates, etc. to the value of \$80. Painted buildings, put up new gates, repaired fences, and sold the farm for \$7,800. What is the gain? How many farms could be increased in value in your township in a similar way? What effect would it have on a community?
3. How much can a farmer afford to pay for an engine to use in pumping water for 15 head of stock. Labor at \$45 per month—time required to pump by hand 30 minutes—Fuel and lubricant for one year \$10—depreciation 15%—interest 6%?
4. How many rats would during one year eat corn to the value of wire cloth and sheet metal sufficient to forever protect your grain from these pests? Corn stored 8 months—one rat will eat food to the value of 60c in one year. Wire cloth and sheet metal cost 3c per sq. ft.—average crib 5 x 10 x 20?

W. Porter Elliott, Athens, O.

1. A bought 2 calves for \$20.00. He fed them \$10.00 worth of clover hay, \$15.00 worth of corn and \$12.00 worth of chop. The corn cost 60c per bushel, chop, \$1.20 per 100 lbs. and hay \$8.00 per ton. He sold them for \$80.00. How much of each kind of feed was fed, and what was the per cent. of gain on the investment? Did it pay?
2. If spraying is what writers and demonstrators say it is, how much would the farmer lose in five years who owned 50 apple trees, 15 years old, by neglecting to spray?
3. If one toad hops into your garden and destroys 30 cut worms during one night, and your son kills five toads the next day, how many cut worms will go unmolested the next night? At that rate estimate the value in money.
4. 210 hens in one bunch produce \$10.00 worth of eggs in one year. how many dollars worth of eggs would 500 hens in one bunch produce in one year?

H. D. Bowsher, Hume, O.

- Four 10-acre fields, in a 4-year rotation, yielded per acre as follows: Corn, 40 bushels; oats, 35 bushels; wheat, 15 bushels and clover hay, 1½ tons.

After attending a farmer's institute, the owner systematically and thoroughly tile drained those 40 acres by laying tile 3 ft. deep, in parallel trenches, 2 rods apart, at a cost of \$40.00 per acre.

The yield per acre was, consequently, increased to—Corn, 70 bushels; Oats, 60 bushels; Clover, 3 tons and Alfalfa, 4 tons.

Prices on products remained stationary at—Corn, 60c; Oats, 35c; Wheat, 90c per bushel; Clover, \$8.00 and Alfalfa, \$12.00 per ton.

QUESTIONS.

- What was the total cost of tile drainage?
- What was the value, annually, of simply the increase of production by reason of tile drainage?
- What per cent. did tile drainage pay annually?
- Rather than farm wet land, do you believe that a renter, having a farm leased for three years or more, for cash, could afford to tile drain at his own expense?

C. F. Green, Pataskala, O.

- If by using a pure bred sire upon a herd of 20 cows, the heifer calves are worth \$10.00 each more than their dams, what is the value of such a sire above that of a common bred sire if used for three years and half of the calves are heifers?
- Two men had adjoining fields planted to corn. The first began cultivating as soon as possible and with two men got over the field in one day but cultivated six times, the other had seven hands working 2 days at each cultivation but cultivated only three times. Had the crops been equal, which worked most economically?
- Which pays best for equal amounts of feed, a cow giving 30 lbs. of 5% milk or one giving 60 lbs. of 3.5% milk per day?
- When corn is worth 63c per bu. and hogs 7c per pound, what gain should hogs make for every bu. of corn consumed? Do yours do that?
- If it costs \$25.00 per acre to tile drain a field, how long will it take it to pay for itself if the corn crop is increased 10 bu., wheat 4 bu., and hay 500 lbs per acre?
- If a hired man is worth \$20.00 per month, for working 10 hours per day, what is a reasonable compensation for a wife that works uncomplainingly for 15 hours every day?

J. W. Nicodemus, Van Wert, O.

1. How many pounds of protein in one bushel of Soy beans?
2. If 200 lbs. of acid phosphate is applied to one acre, how much is applied to one square rod?
3. If 300 lbs of 16% acid phosphate is applied to one acre, how many pounds of plant food has been given the crop?

SEED AND DRAINAGE.

A. P. S.

Good seed and good drainage will invent a blessing and a bank account. Bad seed corn will cost farmers more than cutting and husking the crop. A tile drain every 40 feet will be a friend in deed and a friend in need. Make good wages testing seed corn. No use crying over spilled milk. No use planting corn that will not grow.

Good drainage will insure fat years. It has been discovered that during the Biblical seven lean years the tile ditches were stopped up.

Ohio's annual loss from bad and impure seed amounts to millions of dollars. Good seed is cheap at any price.

Bad drainage costs Ohio millions of dollars. When the crop in the field shows where the ditches run, more tile are needed.

"Give us this day our daily bread" is a good prayer. "Give us this year our good seed corn", and religion and prosperity will multiply.

Average Ohio corn yield per acre is 38 bushels. A 4-ounce nubbin on each stalk, 3 stalks in a hill, $3\frac{1}{2}$ feet apart, makes the Ohio average. This means nubbin farming.

Add 2 ounces to the average Ohio nubbin, and tons of prosperity will be added to the railroads, banks, elevators, mills, merchants, farmers, and some small change to the preachers.

To insure full reward for your labor, select best seed that can be obtained.

VALUE RECEIVED.

The Golden Rule is the only law upon the statute books of Heaven.

Its observance will cause us to give and to get Value Received in all things whatsoever.

Genius mixes brain with lightning, gasoline and metal—the automobile is Value Received for continued effort.

Marconi made ethereal waves carry human thought through boundless space—wireless telegraphy is Value Received for patience and perseverance.

Man creates machine that lifts itself and him from earth to sky. He travels in dizzy altitudes. The aeroplane, an accomplished fact, is Value Received for dauntless daring and determination.

The farmer gets Value Received from seed sown.

He who drops good seed into the ground will have an excellent crop of painted buildings, clean ditches, good fences, good live stock, profits and good humor.

He who feeds the soil with poor seed will get and regret a splendid crop of weeds, broken gates, leaky roofs, poor machinery, scrub animals, and back taxes.

Dirt, pregnant with good seed, multiplies the comforts, conveniences, and beauties of home.

Poor seed begets the blues, sour grapes, gourches, and divorce cases.

Appearance of farm home discloses the difference between good seed and bad.

Value Received comes in proportion to our due.

Bookkeeping invites and smiles at Value Received.

By telephone and newspaper the price of products may be learned.

By bookkeeping cost price may be discovered.

Cost of production equals, in importance, the selling price of commodities.

Bookkeeping discovers the presence of Profit or Loss in a bushel of grain or market animal.

Bookkeeping entitles a farmer to associate with business men.

Run-down farms, mortgages, law suits, and sheriff sales nurse and thrive at the breast of bad bookkeeping.

Bad bookkeeping rocks the Cradle of Bankruptcy.

Prosperity is measured by difference between money received and money spent.

Good Seed and Good Bookkeeping, multiplied by Sense, equals Prosperity and Value Received.

"Big Four"
Apple
Corn
Dairy
Poultry
Combined

Winter Show

January 9-15
State Fair Ground
Columbus, Ohio

Annual State
Agricultural
and Stock
Breeders
Meetings
Same Time

State Fairs Educate-Elevate

Columbus, August 30
September 3, 'Fifteen

THE AGRICULTURAL COMMISSION